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BEAUTIFUL FLOWERS

AND HOW TO GROW THEM



FUCHSIAS IN THE GREENHOUSE

By A. Fairfax Muckley

BEAUTIFUL FLOWERS

AND HOW TO GROW THEM

BY

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BEAUTIFUL FLOWERS

THE CARNATION

THE Carnation is a prime favourite with almost every lover of flowers. We may include the Pink with it in a general sense, and when we do so we widen its appeal. It is one of those old, old flowers, love of which has become almost traditional. It could no more be torn out of the lives of the British people than affection for the Union Jack. True, it is not the national flower; that great distinction belongs to the Rose; but it is only in a minor degree that it falls short in its hold on the affection of the public. There are perhaps more Roses than Carnations grown, but for all that there are few gardens worthy of the name in which the Carnation is not represented. And its appeal is a very intimate one; it is not merely admired, but loved. It gets its roots deep down into our hearts.

What is the explanation of the great favour which the Carnation enjoys? It is undoubtedly the union of attractive form and colour with delicious perfume. Our ancestors learned to love the flower because it was at once beautiful and sweet. They did not call it by its present name in the earliest times. It was known to them as the Gilloflower. Of course, more than one plant bore this name. When we escape from the rush and bustle of the modern workaday world—from the hissing of the electric tram, the humming of the printing-press, and the hooting of the motor-car—into the quiet seclusion of the study, and spend a delightful hour with the old poets and gardening writers, we find that

Stock, Wallflower, and Carnation were alike called Gilloflowers. But there were distinctions between the members of this lovely, fragrant trinity. The first was the Stock-gilloflower, the second the Wall-gilloflower, the third *the* Gilloflower. The Carnation, then, was the Queen of the old Gilloflowers. Gillyflower, Gilloflower, or Gilliflower (all three spellings appear) is held to be a corruption of *Caryophyllum*, the clove.

When Chaucer writes of the "*clow gilofre*" he certainly means the clove gilloflower—the Carnation. The lines following his allusion to it—

"And notemuge to put in ale
Whether it be moist or stale,"

point to its admitted use in the olden days as a spice.

Whence, however, the derivation of the name "Carnation," and whence that of "clove"? The answers to these questions are full of interest, because the two names are shown to react on each other in a remarkable, and yet simple, way, arising directly out of the perfume of the flower. The old writers used the term Clove Gilloflower because the bloom had the odour of the commercial clove—that spice, early childhood memories of which are chequered by the recollection of its use, not only in various agreeable dishes, but also as a supposed remedy for toothache. The clove is the dried flower-bud of the Myrtaceous shrub *Caryophyllus aromaticus*, from the Latin *caryophyllum*, a clove. Now, according to some authorities, the word "carnation" is neither more nor less than a corruption of *caryophyllum*. Another derivation is suggested, however. The ancient Greeks and Romans used the flower for making chaplets, and hence it was called the "coronation flower." The corruption of "coronation" to "carnation" is more obvious than the change from *caryophyllum* to Carnation, although the latter is by no means impossible. Some writers contend that instead of "carnation" being a corruption of "coronation," the reverse holds good—that "carnation" was used

to describe the flower because of its colour, and that it came to be called a "coronation" because lovers used it as a crown when they became engaged to marry. These conflicting views illustrate the difficulty of offering an explanation that is equally satisfactory to all, but one thing is clear through everything, and that is the clove association. It lingers in the botanical name of the Carnation, which is *Dianthus caryophyllus*. The word *Dianthus* means "flower of the gods."

The fact that the Carnation was known to the ancient Greeks and Romans proves it to be a very old plant. Pliny places its earliest habitat in Spain, where he states that it was found in the days of Augustus Cæsar. He tells us that the Spaniards used it as a spice. As we have seen, the old English used it in the same way; hence the name "soppes-in-wine." It is difficult to say when the plant first appeared in Britain. The original plant was flesh-coloured, and according to Gerarde yellow varieties were not introduced until 1580. If that were so they developed very fast, for we find Shakespeare writing of "streaked gilivors" in 1601, and read of Parkinson growing a "complete collection" some thirty years later. But they were not classified into the sections under which we have them, such as Bizarres, Flakes, Selfs, and Picotees, until later days. This was probably done in the eighteenth century, towards the end of which Flakes and Bizarres were grown to as high a state of perfection, according to one famous modern florist, as they are at the present time. In support of his contention, he refers his readers to Plate 39 of the *Botanical Magazine*, where a splendid example of a florist's Carnation is shown. The yellow ground Picotee appeared in the seventeenth century.

In modern days the greatest development among Carnations has been in the Selfs and Fancies. The former are one-coloured flowers; the latter are yellow or white flowers, suffused and otherwise irregularly marked with another colour. They are beautiful classes, both for garden and pot culture, and the same remark

applies to the Picotees, which have a clearly defined line of colour round the edge of the petals. The Bizarres and Flakes are almost exclusively exhibition flowers. The old British florists stipulate for a circular, well-filled flower, with smooth, round petals, the edges of which are uncut. The petals must overlap each other evenly. A class of Selfs has developed, however, with cut or serrated edges. As florist's flowers they are imperfect, but the blooms are large, the colours are brilliant, the perfume is powerful, and the plants are valuable for winter blooming in pots, consequently they are in great favour. They are called American Carnations, and may tend to displace the old type of Winter or Tree Carnations, and also the Malmaison class. The latter is very beautiful, but is somewhat difficult to manage, and really needs to be grown in a house to itself to be in perfection.

We will give selections of the various classes:—

Scarlet Bizarres.

Robert Houlgrave.
Admiral Curzon.

Pink and Purple Bizarres.

Wm. Skirving.
Sarah Payne.

Crimson Bizarres.

Rifleman.
Master Fred.

Scarlet Flakes.

Sportsman.
John Wormald.

Purple Flakes.

James Douglas.
George Melville.

Rose Flakes.

Thalia.
Mrs. Rowan.

Crimson Selfs.

Agnes Sorrel.
Gil Polo.

White Selfs.

Trojan.
Hildegard.
Mrs. Eric Hambro.

Yellow Selfs.

Daffodil.
Cecilia.

Pink and Rose Selfs.

Lady Hermione.
Lady Carrington.

Scarlet Selfs.

Barras.
Herbert J. Cutbush.

Yellow Ground Fancies.

Amphion.
Brodrick.
Hidalgo.

White Ground Picotees.

Amy Robsart.
Brunette.
Fortrose.
Ganymede.
Little Phil.
Zerlina.

Yellow Ground Picotees.

Childe Harold.
Gertrude.
Gronow.
Lucy Glitters.
Rabelais.
The Pilgrim.

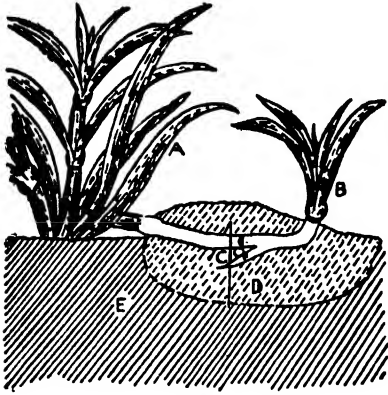
Malmaisons.

Lady Ulrica.
Lord Welby.
Mrs. Martin Smith.
Mrs. Trelawny.
Princess of Wales.
Thora.



EUPHARIS AMAZONICA
By A. Fairfax Muckley

but some growers prefer to let them take their chance in the open ground. The Carnation is hardy, but damp often kills plants out of doors, especially in wet, heavy soils. Pinks are propagated by means of young shoots pulled out of their sockets.



LAYERING CARNATIONS

A, old plant; B, young layer; C shows the cut made with a sharp knife, lip of stem kept open with small pebble; D, special compost; E, border soil.

Planting.—The Carnations may be put into the beds or borders from the end of March to June, but April is about the best planting month. If the soil is very poor it ought to be dug two spades deep, and enriched with decayed manure. If stiff and lumpy it should be lightened with road grit, or mortar rubbish. The

plants may be put eighteen inches apart, and pressed firmly into the ground. They will not require stakes in themselves, because the growth is bushy and low, but the flower stems will need support, and it will be wise to get the special stakes which exhibition growers use, such as Sydenham's or Porter's. They are not expensive, and while adequately supporting the stem they allow it to extend freely.

Disbudding.—Growers who want a large number of flowers will not disbud to any great extent, if at all; but those who grow for exhibition will find it absolutely necessary to thin the buds severely. They will be found to come in clusters, and these are reduced to the central or crown bud, which develops into a large, symmetrical flower. The splitting of



PLANTING AND SUPPORTING CARNATIONS

the calyx, which is common in many beautiful varieties, permits the mass of petals which compose the bloom to bulge at one side, and so spoil the shape. It is prevented by slipping on an india-rubber ring. It will be necessary to shade the bed if the flowers are to be kept quite fresh and of good colour, but it may be well to warn readers who contemplate competing at the principal shows that they will find themselves confronted by men whose blooms have been grown in pots under glass. Even the Selfs are generally grown in pots when show quality is aimed at.

Enemies.—The Carnation has several enemies, which, among them, cause growers endless trouble and loss. Wireworms and leather-jacket grubs, which will attack most plants, are particularly fond of the roots of Carnations. Inasmuch as these pests are generally abundant in pasture land, it follows that trouble must be expected when turf is taken up in order to make flower-beds. It is a good plan to plant Potatoes on the ground first, as they draw off a large number of grubs. True, they themselves suffer, but unless they are a special variety they are of much less value than Carnations. Another plan is to dress the ground with gas lime, but this must only be done with certain precautions. In the first place, one pound per yard should not be exceeded. In the second, the lime must be allowed to lie on the surface a few weeks before being turned in. In the third place, it is wise to let the ground lie fallow for a few weeks longer, or to crop it with something of no special value, such as Potatoes or Greens. The least that can be done is to use baits among the Carnations. These may consist of pieces of Potato, Carrot, or Mangel-wurzel impaled on sticks, by means of which they can be thrust into the ground. The baits must be withdrawn at frequent intervals, and any grubs found on them destroyed.

Hares and rabbits must be looked upon as very dangerous enemies of Carnations. Rabbits will attack them in preference to almost anything in the garden, and will clear off every Carnation

may be sprayed with sulphide of potassium (liver of sulphur) dissolved in water at the rate of one ounce to three gallons. If the plants are to be treated they should be carried out of the house, as the solution discolours paint.

CARNATIONS IN POTS

Exhibition Carnations are generally grown in pairs in 7 or 8 inch pots, but there is no reason why they should not be grown singly in smaller pots, such as 5-inch, if more convenient. Assuming that they are struck from layers in summer, they will be put into small pots in autumn, wintered in a frame or cool house, and repotted when they start growing in spring. Three parts of fibrous loam, one each of leaf-mould and decayed manure, and about one-tenth of coarse sand will suit them admirably. They must receive abundance of air, and no attempt should be made to push them on in heat. If they are coddled up in a close, moist, warm atmosphere they will fall victims to mould. With careful watering, and abundance of air, the plants will make steady progress.



POTTING CARNATIONS

A shows a seedling in a small pot;
B, the young plant repotted in
compost C.

In due course flower-stems will begin to rise. There may be more than one to each plant, and if there are they should be immediately reduced to one, if fine flowers are required. Further, disbudding will be needed, and until the grower has learned from experience how to handle the different varieties, he will be wise to allow each shoot to carry three flowers—the central one, and two others on lateral shoots below. Disbudding is often carried much further than this—even to the extent of having only one

flower on each plant; but such severe restriction, in the case of the strong Selfs, is best left to thoroughly experienced growers, who know what varieties it may be practised on, as if disbudding is carried too far it is apt to lead to coarse, ugly flowers. Staking and shading must have due attention in their season.

Malmaisons.—These are not a suitable class for amateurs who have only one house, as the plants do not take kindly to association with a mixed collection of plants. They are generally propagated by layers after they have flowered, and for this purpose are planted out in frames. When rooted the young plants may be placed singly in 4-inch pots, and grown through the summer in a frame, or on a bed of ashes in a sheltered part of the garden. In September they may be transferred to 6 or 7 inch pots, and in October put in the house. They must be watered carefully throughout the winter, kept as cool as possible, and given abundance of air at every opportunity. Thus treated, they will flower in late spring and summer.

Tree or Perpetual Carnations.—These are winter bloomers with those who have a warm greenhouse, and consequently they form a very valuable class. They are free-flowering, bright in colour, and fragrant. They are propagated by cuttings, and it is desirable to strike these in bottom heat in winter, because then the young plants will flower the following winter. If the cuttings are not struck before spring, and that without bottom heat, they may not be strong enough to bloom before the second winter. The cuttings should consist of side shoots, which may be inserted round the side of a pot, and transferred singly to 3-inch when rooted. From these they may be transplanted to 5 or 6 inch pots when the smaller ones are filled with roots. In the spring they may have a frame, but they will be safe enough out of doors in summer, if stood on a bed of ashes. Before they are six inches high the top should be pinched out to cause side shoots to form, and about the end of June they may be

stopped again. This will insure compact, free-flowering, bushy plants. The same compost as advised for Selfs will do.

American Carnations.—These, like the Trees, are winter and spring bloomers. They are, indeed, a section of Trees, but in some respects they are superior. They have larger flowers, and much longer stems. The latter is a strong point in their favour, because it enables them to be used in decoration without wiring. They may be propagated from cuttings, potted, and treated generally like the Trees, but the writers prefer the American plan of forming a bed for them in the house, and planting them out. It saves the trouble and expense of potting. They fix strings across the bed, about a foot above the surface of the soil, to tie the flower-stems to. With an intermediate house temperature, say a minimum of fifty to sixty degrees in winter, blooms will be forthcoming in a long succession during winter and spring. It is possible to get them at Christmas.

THE DAHLIA

FEW garden flowers have a more loyal following than the Dahlia. Even in those days, apparently remote, yet in reality quite recent, when Cactus and single varieties were practically unknown, and when such epithets as "stiff" and "lumpy" could be applied to Dahlias with a certain measure of justice, they had a band of supporters which never wavered in its fealty. When the Rose-lover criticised the Dahlia as a flower lacking in grace, and the Carnation enthusiast commented on its want of perfume, the faithful had to maintain a discreet silence, but they gave their favourite flower the same unswerving allegiance that they had always done.

What is the secret of the hold on its admirers which the Dahlia seems capable of exercising? When we find a human being who is able to seize, and retain, the admiration of a large number of his fellow-creatures, we expect to find something in him at once uncommon and worthy. Making due allowance for the fact that the Dahlia had established itself in this country before some of our modern favourites fairly began their course, and thus secured an advantage of no light character among a people remarkable for their tenacious conservatism, it is only fair for its critics to acknowledge that it would never have done this if it had not real garden merit. Well, we can say several things in the Dahlia's favour. In the first place, it is a plant of very free growth. There is no namby-pambyism about it. It does not take half the summer to prepare for growing and the other half to prepare for flowering. Provided that it is raised sturdily and given good soil, it buckles to its task at once, and



NARCISSUS, GRAND MONARQUE
By E. Fortescue Brickdale

goes ahead with the most refreshing vigour. This is one thing about the Dahlia which growers of it like. They derive an immediate reflex glory from it. They see it extending healthily from day to day, and their hearts warm to it. They are able to point the bed of Dahlias out to their friends with pride and satisfaction. There is something to see about it. A collection of Dahlias is like a family of sturdy, ruddy children. It stimulates the instincts of parenthood.

A second strong point about the Dahlia is its great array of bright and cheerful colours. Robust in everything, it is not least so in its tints. Here is a vivid scarlet, here a brilliant carmine or a rich crimson, here again a pure white, a clear yellow, a delicate blush, a bright rose. Blue we do not find, but maroon we do. All are not Selves. Some are bicolors, and there is a section with flaked flowers, the markings of which are both singular and pleasing.

Already we see that the Dahlia is quite a John Bull type of plant, with its sturdy vigour, its bluff directness, its pushful pertinacity. But there are more things than these in its favour. Its flowers fall naturally into harmonious forms. They mould themselves on true lines. The florets unfold, not in a confused mass, but in an ordered series, one overlapping the other, so that the finished flower has perfect contour.

It was the large size, admirable symmetry, and clear colouring of the Dahlia which led to its acceptance as a "florist's flower." A coterie of growers specialised it. They formed a Dahlia society. It was useless, after that, for the critics of the Dahlia (and they have always been both persistent and numerous) to attempt to overthrow it. "Lumpy" it might be; scentless it certainly was. No matter, it was enthroned as a "florist's flower"; and although it might, nay must, pass through vicissitudes, it was as stable as the dynasty itself.

The specialists unfurled their flag over the double Dahlia,

which they divided into two sections, respectively "Show" and "Fancy." Self-coloured blooms, or those with the colour deepening along the edge of the flower, were Shows, and flaked blooms were Fancies. The latter term was a better one than the former, for, as a matter of fact, both sections have a recognised exhibition standing of nearly equal value; and both therefore, in the practical sense, are "show" flowers. The Dahlia stalwarts should have called their one-coloured flowers Selves, and their parti-coloured flowers Fancies; then the position would have been a little clearer. But they did not, and it is too late to speak of a change now.

When the Cactus and single Dahlias were improved into great classes, the old school could, an it had cared to do so, have scored very heavily over Dahlia detractors. "Lumpy! devoid of grace!" it could have cried in triumph. "What flowers can you find more full of elegance than these?" But it did nothing of the kind. It displayed a most charming generosity. Or was it (as some have put it) that it was itself more than a little cold towards the new-comers, and disposed to regard them as interlopers? Was it a little purblind, and did it fail in prophetic vision to the extent of seeing no future for the fresh classes? (We only speak of the single Dahlia as "fresh" in the florist's sense; botanically it is an old flower.) If the latter was the case, the Dahlia-lover of the Old Guard certainly missed an opportunity, and displayed great want of foresight. The Dahlia became a new flower from the time that cross-fertilisers took the Cactus and single-flowered types in hand and made great sections of them. It was no longer a specialist's flower and nothing else. It was no longer a mere show flower. It became a great flower-garden plant for the million.

It is likely that but for the improvement in these two beautiful sections the Dahlia would have declined in favour. Its old supporters would have clung to it as long as they lived, but as they died out gaps would have been left in the ranks, which new

adherents were not there to fill up. Thus each succeeding year would have seen a smaller army. We take this view because we note the advance of garden Roses, Sweet Peas, Chrysanthemums and Michaelmas Daisies, the rivalry of which with Dahlias would have grown keener and keener every year. As it is, the Dahlia has taken a fresh lease of public favour. There are more growers for show than ever there were. True, the exhibitions have changed their character somewhat. The classes for Show and Fancy flowers are not so important as they used to be, while those for Cactus varieties have grown greatly in interest; but shows are at least as big as they were in the old days, and they are certainly more varied and beautiful. There has been a tenfold increase in the number of people who cultivate Dahlias as garden plants. People grow Cactus Dahlias who never would have grown a Show variety. And thus recent developments have strengthened the Dahlia enormously. It ranks well among the first half-dozen plants of the flower garden—a state of affairs that could not have been expected in the last quarter of the nineteenth century.

The Dahlia came to us from Mexico in 1789, so that it is quite an old plant in British gardens. Its name was chosen as a compliment to a Swedish botanist named Dahl, but growers did not pay him the additional compliment of pronouncing his name correctly, and so confusion threatened to grow up with an existing genus called Dalea, doubtless in honour of a person named Dale. Dahl—Dale; Dahl-ia—Dale-a. Surely the names suggest different pronunciations? But no. Dahl-ia was mispronounced as though it were Dale-a. An attempt was made to change the name, and it was called Georgina. According to some authorities, this was due to an error on the part of a German botanist. Others attribute it to the fact that purists were irritated about the mispronunciation. In the end Dahlia was adhered to in this country, inaccurate pronunciation and all. That no real trouble arose may be attributed to the fact that the genus Dalea

is an obscure and unimportant one; but the sticklers were never quite satisfied, and to this day one meets with an occasional person who clings (somewhat pedantically) to the true pronunciation.

The original species is called by botanists *variabilis*, on account of the variability of the colour, which was generally either crimson or purple. But this was not the first name given to it. In the first place, it was called *superflua*, on account of the central florets differing from the outer ones. At different parts of its career the plant enjoyed other specific names—*crocata*, *frustranea*, and *pinnata*—so that altogether the Dahlia has had a somewhat troubled time with that much-sinning sect, the plant-namers. A philosopher once remarked that a man of many aliases should be avoided as a dangerous character, but a plant with several names should be sought after, as it was probably something both uncommon and desirable. This was certainly true of the Dahlia. Other species were introduced. A notable one was *coccinea*, with scarlet flowers which also came from Mexico. As in the case of the sister species several names were given to it, such as *bidentifolia*, *Cervantesii* and *frustranea*. That of *coccinea* is simply in allusion to the colour. We use the word "notable" in connection with this species, because, with *variabilis*, it is certainly a parent of our modern garden Dahlias. *Merckii* (otherwise *glabrata*) is remarkable for the same reason. This has lilac (sometimes white) and yellow flowers. It came from Mexico in 1839. These three species were doubtless crossed, and the progeny intercrossed. As in the case of other important garden plants, a great deal of the work of fertilisation was done by trade florists for commercial purposes, and this class is notoriously prone to keep its operations secret. For this reason it is doubtful if there is any record of real value dealing with the course of crossing which resulted in the production of the beautiful Dahlias which we possess to-day.

Another very important species must have special mention, and that is *Juarezii*, which came from Mexico in 1872. It



ROSE, FORTUNE'S YELLOW
By Margaret Waterfield

Importance of this species, which bears scarlet flowers, lies in the fact that it was the parent of our great modern class of Cactus Dahlias. Several years passed before the public took much notice of it, and a great many more before the florists secured new varieties of sufficient merit and distinctiveness as to command the earnest attention of the flower-loving public; consequently, although a considerable time has elapsed since the first Cactus Dahlia appeared, it is, as a class, quite modern.

Opinions may differ as to whether the single or the Cactus section did the more towards making the Dahlia the popular flower which it is now. Certainly the single, in its improved forms, became extremely popular in the last quarter of the nineteenth century, and did a great deal to spread a love for Dahlias before the Cactus class had developed. But there is no comparison between the two now. The Cactus has far outstripped the single, as it has every other class. It has a great advantage over the single in the more lasting quality of its flowers. The single is undeniably beautiful and graceful, but its value both for garden decoration and cutting is marred by the comparatively short life of the flowers.

The Pompon, Bouquet, or Lilliputian class is one of great value, and must not be overlooked, especially by those who are chiefly concerned with the Dahlia as a flower-garden plant. It is distinguished by great freedom of blooming, considerable duration, and strong flower-stems, which lift the beautiful little blossoms well above the leaves, and so insure their being well displayed. Herein it is unquestionably superior to the Cactus class. Many of the most beautiful varieties in the latter section have short, thin, weak flower-stems, which are incapable of lifting the blooms well up above the leaves, and consequently they are not so effective on their plants in the garden as they are on boards at the shows. The Pompon is really a Show Dahlia in miniature—that is to say, it has the form and colour of the Show, but is much smaller

in size. A Pompon is quite big enough if as large as a golf-ball; it is too big if larger than a tennis-ball. Great size is a defect, not a merit. The flowers of the best Pompons are borne in clusters. The colours are varied and brilliant.

There is a class of dwarf Dahlias in existence called the Tom Thumb. It appeared somewhere about the year 1890, perhaps a little earlier. The writers very well remember the interest which it aroused on its introduction. The plants only grew about a foot high, but the flowers were similar to those of normal plants. They were mostly, if not entirely, single varieties. There seemed to be an opening for such a class, especially for very small gardens, but it did not prove to be very successful, principally owing to the somewhat puny growth and few flowers. Plants can still be got.

The early years of the twentieth century saw a class of Dahlias originate in Holland which was called the Paeony-flowered. The varieties are remarkable for the huge size and brilliant colours of the flowers. They are borne on long, strong stems, which display them to the utmost advantage. Lovers of refined flowers look askance at these huge, vivid blooms, and stigmatise them as coarse. Owners of large gardens who want brilliant breaks of colour seem inclined to take to them. At the time of writing the popularity of the Paeony Dahlias is rather a matter of promise than of fact. So far only a few varieties have appeared, but if there are signs of a brisk demand more will come, and that quickly, for trade florists are wonderfully quick in seeing and meeting a demand. Strange as it appears to the layman, they seem able to multiply the varieties almost as quickly as cloth-makers can evolve new patterns, or lace-makers produce new designs.

The above do not exhaust the number of classes, although they are the most important. There are also the Pompon Cactus, the single Cactus, the Star, and the Decorative Dahlias. These are

all small in numbers, but they have their interest, and command a certain number of admirers.

As we have referred at some length to the various sections, we may complete the subject by giving selections of varieties in each, before proceeding to discuss culture. To some extent such selections can only have a passing value, inasmuch as new varieties are constantly appearing, and so far as exhibition growers are concerned it is very important to keep in touch with the novelties. Still, hints as to choice of sorts will be of service to two large classes—those who grow for garden decoration, and those who are beginning Dahlia cultivation, for whatever purpose. It is not nearly so important for garden growers to buy novelties as it is for exhibitors to do so; indeed, the former class will be wise to make changes with caution. When it has found varieties which are of real garden worth—sorts of good habit as well as of beauty of bloom—it must keep to them until it has real proof that the latest sorts have more than mere perfection of flower or freshness of colour to recommend them; it must not cast them out in favour of a costly novelty on no better ground than that the latter looks nice on a show board. Many make this mistake. How, it may be asked, can it acquire knowledge without growing the sorts? Well, lovers of Dahlias generally get into touch with each other somehow. Experiences are exchanged. Information is disseminated through the National Dahlia Society, and through the horticultural press. New Dahlias are seen at the different nurseries, and notes can be taken of their behaviour in these places.

Speaking broadly, the amateur must not expect too much of Show and Fancy Dahlias as garden plants pure and simple. He should expect to get his best garden effects from the Cactus, Pompon, single, and Paeony-flowered sections. There are, however, some large double Dahlias which are good from the garden as well as the exhibition point of view, and those shall have places in our lists.

SHOW DAHLIAS

A good Show Dahlia must be quite round, exhibit no central ball or "eye," and have rolled-in (quilled) florets.

Crimson King, crimson.

David Johnson, salmon, rose shading.

Ethel Britton, white and purple.

John Walker, white.

Merlin, orange.

Mrs. Gladstone, blush.

Mrs. Jefford, yellow.

Mrs. Slack, blush and purple.

Perfection, buff.

Queen of the Belgians, cream.

R. T. Rawlings, yellow.

Spitfire, scarlet.

FANCY DAHLIAS

A good Fancy Dahlia must, like the Show, be round, eyeless, and have quilled florets. It always has two colours, generally one striped or flaked through the other, but sometimes with a clear white tip, as in the well-known variety Peacock.

Comedian, orange and crimson.

Dorothy, maroon and fawn.

Gaiety, yellow and red, white tips.

Goldsmith, yellow and crimson.

Matthew Campbell, buff and crimson.

Mrs. N. Halls, scarlet, white tip.

Mrs. Saunders, yellow and white.

Novelty, rose, purple flakes.

Peacock, maroon, white tip.

Prince Henry, lilac, purple stripes.

CACTUS DAHLIAS

A good Cactus Dahlia must have a round flower, but with the tips of the florets apart, owing to their coming to a point. Each must be tubular, not quilled. The flower must be full and high in the centre, not flat.

Alpha, blush, flaked purple.

Amos Perry, crimson.

Britannia, salmon pink.

Effective, amber.

Etna, reddish lilac.

Eva, white.

Florodora, crimson.

H. F. Robertson, yellow.

Mrs. H. L. Brousson, salmon.

Pearl, pink, white tips.

Reggie, maroon.

Spitfire, scarlet.



HIPPEASTRUMS (AMARYLLIS)
By Beatrice Parsons

POMPON DAHLIAS

A good Pompon Dahlia must have small, round flowers, with quilled florets, and show no eye.

Bacchus, crimson.

Buttercup, yellow.

Guiding Star, white.

Jessica, amber, red edge.

Nerissa, rose, silver edge.

Phoebe, golden orange.

Spitfire, scarlet.

Sunny Daybreak, apricot.

Tommy Keith, red, white tips.

SINGLE DAHLIAS

A good single Dahlia must have a circular flower of eight broad florets, each rounded, not pointed, at the extremity, and all slightly overlapping each other.

Beauty's Eye, mauve, crimson ring.

Columbine, rose, orange shading.

Formosa, crimson, yellow centre.

Leslie Seale, lilac.

Miss Roberts, yellow.

Polly Eccles, fawn, red centre.

The Bride, white.

POMPON CACTUS DAHLIAS

Coronation, vivid scarlet.

Little Dolly, deep pink, shaded mauve.

Modesty, flesh.

Peace, white.

Titus, yellow.

Tomtit, rosy pink.

SINGLE CACTUS

These have twisted, incurved florets, and are very quaint.

Althea, crimson.

Brenda, yellow.

Ivanhoe, rose.

Jeanie Deans, orange.

DECORATIVE DAHLIAS

These are flatter than typical show flowers, but the florets are too round for them to be accepted in the Cactus section, with which some of them were originally identified.

Grand Duke Alexis, white. | *Glare of the Garden*, scarlet. | *Spotless Queen*, white.

PAEONY-FLOWERED DAHLIAS

Large, loose flowers, abundantly produced.

Baronne de Grancy, white.
Dr. Van Gorkum, blush.

Germania, crimson.
Glory of Baarn, rose.

STAR DAHLIAS

Pretty, loose, freely borne flowers. The class is good for garden decoration.

Jupiter, white, yellow edge. | *Mars*, white, scarlet edge. | *Saturn*, white, edged maroon.

Naturally, the effectiveness of the foregoing varieties as garden plants will depend in great part on the treatment to which they are subjected. A little thinning of both growth and buds will often make for improvement. We will now consider the various points of culture.



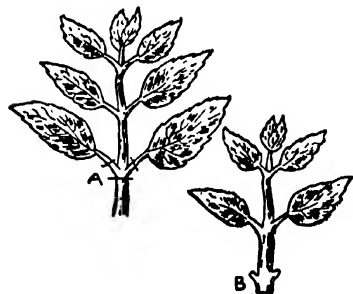
PROPAGATING DAHLIAS

A, old tubers commencing to grow; B, young growths; C, C, good compost in which the tubers are started.

Propagation.—The Dahlia is a tuber-producing plant. When a Dahlia which was planted in June, and which developed into a large, healthy plant in the summer, is lifted in autumn, it is found to have formed a cluster of what the beginner is at first disposed

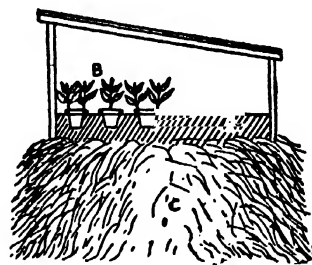
to regard as peculiarly formed roots, but which examination shows to be thick, fleshy growths, with roots proper attached to them. These growths are several inches long, range from an inch to two inches thick, and are attenuated at the apex, where they are attached in a cluster to the lower part of the stem of the plant. They are, in effect, tubers, and are capable of pushing stems and roots. For many years the propagation of Dahlias was conducted almost exclusively by division, each component of the

cluster of tubers being grown as a separate plant. But a Belgian florist discovered that if the "stools" were placed in heat in spring buds would break from the neck, at the point where the tubers were attached, and that if these were allowed to develop into shoots about three inches long, and then removed as cuttings, strong plants could be made of them in a few weeks. The plan speedily became general, as a given variety could be increased much more extensively by this than the old means. When the young shoot is removed it is not advisable to take a portion of the old growth with it, as that would prevent other shoots from following. The cuttings may be inserted singly in sandy soil in small pots, and put in bottom heat if that is available, otherwise in a greenhouse or frame. Those who have no glass may propa-



DAHLIA CUTTINGS

A shows a cutting being prepared for insertion; B shows the cutting ready for insertion.



DAHLIA CUTTINGS IN POTS IN A HOTBED

A, soil and cocoa-nut fibre; B, pots containing cuttings plunged; C, hotbed.

gate by the slower method of dividing and planting the tubers. Dahlias may be raised from seed, and flowered the first year; singles are not infrequently propagated in that way, but it will not keep named varieties true to colour.

Soil.—It is well understood that it is useless to grow Dahlias in poor, shallow soil—that is, if the best results are expected. One must have rich, deeply cultivated land. The objection may be urged against this that it induces the superabundant growth which, in the Cactus varieties particularly, tends to the flowers becoming half hidden; but one must proceed very warily in attempting to reduce growth by moderate cultivation—it is so easy to get to the other extreme. On the whole, it is best to

make sure of a healthy, vigorous plant by digging the soil two or three spades deep, and working in a dressing of decayed manure.

The Dahlia loves plenty of good food, and it loves moisture. A heavy soil will suit it better than a light one.



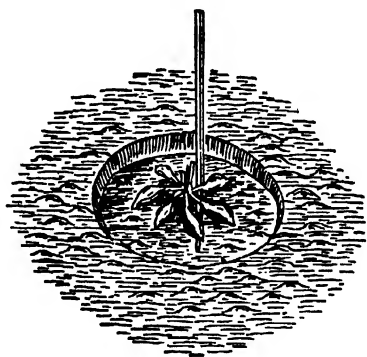
DAHLIA CUTTINGS INSERTED

A shows a cutting inserted singly in a small pot; B shows how to insert three or more in large pots, i.e. 6-inch ones.

Planting.—In mild districts Dahlias may be planted early in May, but they are tender, and no risks must be run. If the young plants are growing healthfully in their pots, and are fully ventilated throughout the spring, they will take no harm until June, but it is advisable to plant them at the beginning of that month, or they may become pot-bound. If the grower has good plants and has prepared his ground liberally, he should

anticipate vigorous growth and allow plenty of room. Six feet from plant to plant will not be too much. At the same time that he puts them in he should insert supports in the form of stout stakes standing a clear four feet out of the ground. These look rather obtrusive at first, but they cannot very well be put in at a later stage without injuring the roots. The soil should be slightly basined around the stem, not mounded. In the one case, what liquid is supplied is sure to get in; in the other, part of it may run away.

Training.—While vigour is desirable on the ground that it promises free flowering and fine blooms, some restriction may be necessary. Those whose object is a limited number of fine flowers will be wise to reduce the main



PLANTING DAHLIAS

How to plant old tubers and fix stakes before replacing the soil.



GLOXINIAS
By A. Fairfax Muckley

stems to four in the case of the Show, Fancy, and Cactus varieties. Singles and Pompons should be allowed more freedom. The side branches may be drawn a little away from the central shoot, and given short stakes of their own. The advantage of this plan is that it effectually prevents overcrowding, and insures the development and display of the flowers. Staking and tying must be thorough, or the first gale may work havoc.

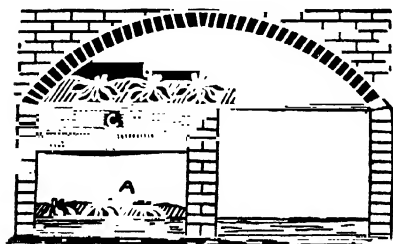
Disbudding.—Those who want exhibition blooms must reduce the buds to one—the central or crown—when two or more come together, as is often the case. Side-shoots with flower-buds will probably break from the stems, but these must be pinched out at once. It will be understood that severe disbudding is no more desirable than thinning of shoots in the case of the Pompons, as it will have the effect of causing them to produce large flowers, and these are not wanted. It does not follow that the first buds which show should be kept for exhibition; they may come too early. This is a matter upon which it is very difficult to advise the beginner, because the dates of shows differ, and so does the rate of progression of the buds, the latter being affected by weather and local circumstances. It is well to have more than one plant of each variety, and to have buds in various stages.

Slugs and Earwigs.—It is hard to say which is the worse of these two pests. The former is troublesome in early summer, when the plants are young; the latter later on, when they have developed and the buds have formed. Slugs may be kept away by the use of lime, either scattered round the plants in a dry state, or watered on at night. Or they may be trapped with heaps of brewer's grains. Earwigs principally feed at night, and hide by day; hence the plan of inverting small flower-pots, with a little hay stuffed in to form a nest, on the top of the stakes, and examining them daily.

Protection for Show Flowers.—The last two or three weeks before a show constitute a critical time in the career of exhibition

Dahlias. Not only is it necessary to take great care that earwigs do not attack the expanding flowers, but the blooms must be protected from the weather. Fierce sun may hurry the flowers on too fast, and affect their colours. Special shades are made, and the grower should inquire about them from the florist from whom he purchases his plants. If the nurseryman does not sell them himself, he will be able to advise what kind to get, and where to get them.

Dahlias in Autumn.—In a cool, mild, moist autumn the Dahlias may remain in beauty until November, but the first sharp frost that catches them will blacken the foliage and stop the



STORING DAHLIAS

A, B, stools stored under stages or arches ;
C, mats suspended for protection.

growth. When this happens it is useless to retain them, as they will never recover, but will die quite away. In view of the fact that they are unsightly in their tarnished state, the sooner they are cut down the better. The stem may be severed just above the ground, and the top growth cleared away. Some growers do no

more than this, and let the roots lie in the ground throughout the winter. No harm will follow if the soil is warm and friable, but in cold, clay, damp soils the tubers may decay. It is decidedly safer to lift them, and after letting them stand upside down on their stumps for a day or two, in order to facilitate the escape of moisture, to store them. They pass the winter best in a dry, frost-proof place. If increase is not desired, and nothing but garden decoration is thought of, the stools may be replanted intact in spring, and with a certain amount of growth-thinning they will give fairly satisfactory results ; moreover, they will flower early, if that is considered an advantage. But those who aim at securing the strongest plants and the best flowers will raise fresh plants from cuttings annually in the way previously advised.

SWEET PEAS

EVERYBODY loves the gay, the fragrant Sweet Pea; and a considerable number specialise it, as other people do Roses and Chrysanthemums.

It is not surprising that the plant should enjoy great favour, because it has very real merits. It is a vigorous grower, is hardy, thrives on most soils and in most districts, is fairly free from serious enemies, is readily raised from seed, is inexpensive, is suitable for indoor and flower-garden culture as well as for room decoration, will thrive in town and suburban gardens, remains long in beauty, and has beautiful flowers with a wide range of colours, exhaling a delicious perfume.

There are few plants of which as much as this could be said. Some have flowers of rare beauty and fragrance, but are difficult to grow, or expensive, or so subject to the attacks of insects and fungi as to be almost "more bother than they are worth."

The Sweet Pea, *Lathyrus odoratus* of botanists, is a comparatively old plant, having been introduced into Great Britain upwards of two hundred years ago. We have not space to trace its history and progress step by step, nor would such a course be quite germane to this work. Those who have so deep an interest in the flower as to be desirous of making themselves acquainted with every detail of its career may be advised to study the publications of the National Sweet Pea Society, a body which has disseminated much valuable information about the Sweet Pea.

We may say, however, that the development of the flower went on very slowly for upwards of one hundred and fifty years. New varieties were introduced at long intervals; indeed, there is no

parallel case, among popular modern flowers, to the tardy development of the Sweet Pea.

There is a distinct physiological reason for this. Plants have different sexual systems. The majority have both sexes united in one flower, and the organs of fertilisation are mature when the flower is expanded, thus affording scope for cross-fertilisation by insect agency, bees and other insects passing from flower to flower, and conveying pollen on their bodies from the anthers of one to the stigma of another. The Sweet Pea belongs to this majority, but the organs are mature while it is yet in the bud stage, and before it expands, with the result that self-fertilisation is inevitable.

It is because the Sweet Pea had this peculiarity (and the fact is certainly uncommon) that varieties multiplied very slowly. Had the flower been of the ordinary class it is quite certain that new varieties would have come more quickly, because cross-fertilisation through external agency would have come into play, with its usual far-reaching effects.

Much has been written respecting the possibilities of the Sweet Pea being cross-fertilised by means of insects. It is fully recognised that if cross-fertilisation is to take place at all it must be through the action of some insect which has learned how to penetrate the defences of the flower, or by wind conveying pollen to exposed organs. Observers have recorded the visits of bees to undeveloped blossoms, and of their getting access through the "keel" (the sac formed by the infolding of the lower petal). But there is no certainty that the flower had not "selfed" (*i.e.* become self-fertilised) beforehand: probably it had. Again, growers of Sweet Peas are quite familiar with a small black beetle, about $\frac{1}{8}$ inch long, which crawls about the flowers, and probably gets into the buds. It is possible that this little insect could convey pollen from one flower to another; but even if it did, there is the probability that self-fertilisation had taken place before the transference of pollen had an opportunity of exerting any influence.



SALVIA

By A. Fairfax Muckley

The fact that "selfing" takes place at such an early stage in the development of the flower should teach those who wish to obtain new varieties by transferring pollen from one flower to another themselves that they must be on the alert directly the plant forms buds. If a flower is emasculated (that is, deprived of its petals and reduced to its central organs) and the anthers are removed before the pollen is ripe, selfing cannot take place. And if then pollen is conveyed from another bud when it is ripe, and placed on the stigma of the emasculated bud when it has become viscid, cross-fertilisation will probably take place. The seed that results when the flower has become a pod and the pod has matured, may yield plants that produce flowers having the characters of both parents.

The modern history of the Sweet Pea began in 1870, when a private gardener of Scottish extraction, named Henry Eckford, who had a taste for crossing flowers, selected the Sweet Pea as one on which to operate. His successes were numerous. In a few years he had added a considerable number of beautiful novelties to the existing list of varieties, and his work went on until the flower was developed, alike in size and diversity of colour, into one of the most remarkable of all our popular garden favourites.

Mr. Eckford's successes set others at work, and novelties poured in from various sources. The colours had been so multiplied and enriched, indeed, and the size and substance of the flowers so greatly increased, that it seemed as though finality had almost been reached. However, in 1901 a startling break appeared. The Sweet Pea may be said to consist of three parts—an upright back petal, called the "standard"; two lower side petals springing from the base, called the "wings"; and the "keel" aforementioned. The standard is the most conspicuous part of the flower, and on its quality depends in a great measure the merit of the whole flower. Now, this large upright petal was a smooth, even structure. It

may or may not have had a notch at the upper central part of the flower; in either case it was smooth. The 1901 novelty departed from this smooth outline, and was deeply waved or frilled. The variation was not only unique, but extremely beautiful, and experts saw at once that an entirely fresh charm had been added to the Sweet Pea.

The newcomer appeared in the garden of Earl Spencer, at Althorp Park, Northampton, and was called by the head gardener, Silas Cole, under whose care it developed, "Countess Spencer." In colour it was a soft pink—a most pleasing shade, equally attractive under natural and artificial light.

Almost simultaneously a somewhat similar break occurred in a market garden near Cambridge, and was called by the owner, W. J. Unwin, "Gladys Unwin." It was not so fine a flower as Countess Spencer, and the colour was much paler.

Two great points of interest arose respecting these novelties: (1) Would the wavy character persist? (2) Was it the result of cross-fertilisation, or a freak of nature—a "sport"? As regards the first, it has to be recorded with sorrow that Countess Spencer proved to be fickle. The variety did not revert wholly, or even mainly, to the plain standard, but it threw different flowers, some plain, others frilled. In the florist's phrase, it was "unfixed," that is, the new character was not a definite and unalterable feature. New varieties raised by crossing Countess Spencer were also unfixed. On the other hand, Gladys Unwin and its offspring remained true.

With respect to the origin of Countess Spencer and Gladys Unwin, various statements and hypotheses have appeared. It has been definitely stated that the former resulted from the artificial pollination of certain varieties, one of which was the old, plain standard pink *Prima Donna*; and that Gladys Unwin came without any such intervention on the part of man in a row of *Prima Donna*. Both, admittedly, came through the medium of the variety

last named ; and it is perhaps the only thing that we can feel quite certain about.

How can a natural crossing in a Sweet Pea have occurred, it may be asked, since we have seen that the flower protects itself against cross-fertilisation by the early maturity of its organs, and by its structure? Well, one or two buds may have been malformed, and permitted a bee to gain access to their interior before they had become selfed. Be that as it may, we now have a large number of colours with the waved or Spencer form, some of which come quite true, while others are still unfixed.

The frilled Sweet Pea may be described as the modern type, and with it came increased size. The best varieties of the present day come with four large flowers on each stem.

The range of colours is great, but not quite complete. We have blues of various shades, reds of different tints, whites, striped, veined, and splashed flowers, Picotee-edged forms, bicolors, and so on ; but we still lack a rich yellow. Curiously enough, the nearest approach to real yellow has not come in the self or one-colour varieties, but in those in which the yellow exists only as a groundwork. However, the fact that we can get near it at all is encouraging, and there is much ground for hope that the yellow, which has baffled raisers for so long, will eventually come, and in a deep, rich form. It has to be remembered that raisers were at work a great many years before they developed a true scarlet. There are now several of this brilliant tint.

In dealing with the culture of the Sweet Pea we may consider by turns the ordinary amateur, who merely wants to have a bright display of flowers in his garden for a few weeks in summer, and the specialist, who wants to have flowers continuously for several months, and to produce them in the highest state. Both classes have to be reminded that the plant is a hardy annual—that is, it grows from seed out of doors, blooms, ripens its seeds, and dies within a year. To be strictly in touch with facts we must state

that culture has gone a little beyond this, and by raising plants under glass in September, growing them under glass throughout the winter, planting them out in rich soil in spring, growing them in a moist climate and constantly cutting the flowers before they had time to ripen seeds, has kept the plants growing and flowering for fourteen months. Further, it is possible to propagate Sweet Peas by cuttings—a method of increase which can be practised with very few annuals. Still, a hardy annual the plant is.

Dealing first with the seed, this ripens on the plants in summer, earlier or later according to the time of sowing and the weather. Those who grow for seed often find themselves at a disadvantage if the plants go on growing right through the summer, because the weather at the end of summer may not be favourable for ripening. On this account they do not prepare very rich, moist soil, and persist in cutting the flowers; but use ordinary soil, and are quite satisfied if the plants only grow four feet high, and go out of bloom and into pod in July or early August.

It will be seen from this that the interests of growers for seed and of cultivators for prolonged garden beauty are not served by the same cultural methods. It is possible, of course, to serve both purposes fairly well, but it needs a little give and take. In the main, growers of Sweet Peas will be wise to decide at the first whether garden display or seed production is the principal consideration. Amateurs at all events will be well advised to let seed-saving fall into second place, or even be abandoned altogether. Seed is cheap, and as a rule is more reliable when bought from a recognised dealer than when saved at home. Those who particularly want to save seeds of one or two varieties should cease picking flowers from a few plants in July. These will soon form pods, which will change colour in August. Should this month be wet and dull, so that the plants break into fresh growth and bloom instead of finishing off the crop, the plants may be drawn from the ground or cut off at the soil level, but left hanging on

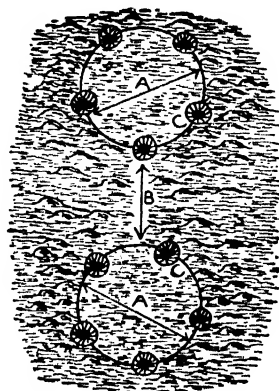


SCHIZANTHUSES

By A. Fairfax Muckley

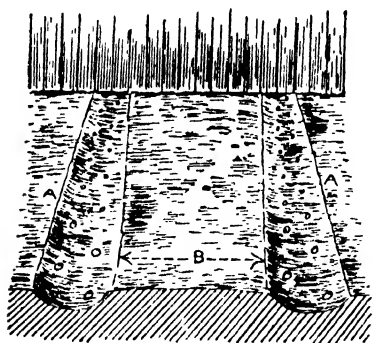
the sticks. The seeds can be gathered just before the pods split open.

The period and manner of sowing may differ considerably. It is not an uncommon plan to sow the new crop of seed soon after it is ripe in the open ground, with a view to getting early flowers the following year. As success is uncertain, amateurs should abstain from sowing seed of expensive sorts in this way; but there is no reason why cheap varieties, or mixed seed, should not be sown in September or October. Success is most likely to follow in light, warm, well-drained soil. In stiff, cold soils failure is common. In any case slugs are apt to take a heavy toll of the young plants in spring, and often ruin autumn-sown crops altogether, unless they are attacked resolutely in turn. (See later remarks on enemies of Sweet Peas.) The



SWEET PEAS—SOWING SEEDS IN CLUMPS

A, A, circles drawn 24 in. in diameter; B, circles 4 ft. apart; C, holes for seeds or plants.



SWEET PEAS—SOWING SEEDS IN DRILLS

A, A, drills 14 in. wide, 2 in. deep; B, space between drills, 6 ft. wide.

ground for autumn-sown seeds should be well dug and manured, and they may be covered with three inches of soil.

The time of sowing the main outdoor spring crop varies with the weather and the state of the soil. Any time from the middle of March to the middle of April will do. More consideration should be devoted to the state of the soil than to the progress of

the calendar. It is unwise to sow when the soil is very cold and wet, as a result of snow or continuous rain. So long as the soil is sodden and inclined to cling, the seed is best in the packets. Directly the soil, while moist, gets into a freely crumbling state,

sowing may be proceeded with. In case of doubt the cultivator should compress a handful of soil from just below the surface in his clenched hand, and then, relaxing the pressure and opening his fingers, observe whether the soil clings closely, almost as putty would, or falls away readily, leaving only a few moist particles adhering. In the latter event the soil is in a suitable state for sowing.

Whoever wishes to achieve real success in growing the beautiful and fragrant Sweet Pea will devote special consideration to the preparation of the site. Soil that is merely dug and manured in the manner practised by cottagers for growing Cabbages will not produce flowers of the finest quality for several consecutive months. True, there are soils of such natural quality that they will grow anything well, but they are few and far between, and even they can be improved.

First, however, a word as to site. There can be no doubt that the Sweet Pea is influenced almost as much by climate as by soil. It enjoys humidity. Wherever there is a choice of sites, a cool, moist one should be preferred to a dry one. It is noticeable that, taking one season and one show with another, growers in the north of Great Britain do better than those in the south, and those in the west better than those in the east. The moister climate is partly accountable for this. We cannot all grow Sweet Peas in the north and west; many of us, unfortunately, have no choice whatever as to site; but we may well keep the point before us, and act upon it whenever opportunity permits.

Deep cultivation plays an important part in the operations of the most successful growers. They devote enormous care and pains to the deepening and enrichment of the ground. This means considerable labour, and some amount of expense; but the one is amply repaid, and the other fully recouped, by a few successes on the show board. The ordinary grower—he who cultivates merely for a home supply of bloom—will not go as far as the specialist;

but even the former should deepen his soil by bastard trenching, because it will give him stronger plants and more and finer flowers. He should remove the top soil from the ground where he is going to grow the Sweet Peas to the full depth of a spade, and then dig over the under soil to another full spade depth, completely turning it. Before he replaces the top spit he should spread on a dressing of good yard manure at the rate of two to three barrow-loads to the square rod. By adopting this plan a depth of at least eighteen inches of pulverised soil will be secured.

It may be asked what should be done if the substratum is not soil, but chalk or rock. In the former case the chalk may be broken up with a pick, and garden refuse mixed with it before putting on the manure and top soil. Further, the surface may be heavily mulched with manure when the plants are growing. This procedure gives a greater depth. In the case of rock the deepening must be mainly through the medium of surface additions.

Labour for this preliminary groundwork can generally be best spared in autumn or winter; but it should be done in spring rather than not at all. However close to the time of sowing or planting that it is practised, it must have an important effect on the crop. If done early the surface should be left rough and lumpy, because if it were broken up at once into a fine tilth the winter rains might cause it to settle down into a close mass.

The specialist will not content himself with bastard trenching, but will shift at least three spades' depth of soil; indeed, some of the most successful men prepare a full yard in depth of thoroughly pulverised, disintegrated, and manured soil. This means working the plot in broad strips, and having two tiers about eighteen inches wide each. The bottom soil is deeply dug and manured; the lower tier is turned on to it and manured in turn, and then the top tier is thrown on to the second. The result of this is that the ground is raised considerably above the surrounding level.

winter comes on, and are easily protected with a few thicknesses of newspaper in very severe weather. On no account should such early raised plants be subjected to much heat, or they will become long, drawn, and weakly.

February is a very good time to sow. One seed may be sown in each 3-inch pot, or five seeds may be put equidistant in a 5-inch pot. They will do quite well in a cool greenhouse or frame. If it is desired to get very early flowers heat may be given to the seedlings, but in this case care must be taken to harden the plants in a frame before they are put into the garden.

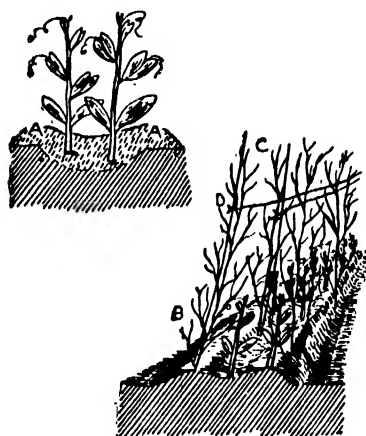
By adopting the plan of sowing under glass there is a practical guarantee that every sound seed will give a good plant, which is certainly not the case with outdoor sowing. This is important when the cost of new varieties is considered.

The seedlings must be kept close to the glass in order to prevent their becoming drawn and weakly. They will then grow slowly but steadily, and keep very sturdy.

A suitable time for planting will probably be found from the middle to the end of April. It should be done when the ground is neither quite dry nor absolutely sodden, but just pleasantly moist and crumbly. If, owing to bad weather, planting has to be deferred, and the seedlings show tendrils in the frame, chop some twigs out of the Pea sticks and set among them.

When planting out, turn the pot upside down with the fingers of the left hand spread across the soil among the plants, give the rim a sharp tap to loosen the pot, and then lift the latter off. Do not shake the soil away from the roots, but (assuming that several plants have been grown in each pot) separate them gently with the soil adhering to the roots. There will be no difficulty about this if the soil is moist. Six inches apart will be a suitable distance to plant, and three inches to cover. Freshly slaked lime may be scattered beside the plants to keep slugs away.

Directly the plants begin to form tendrils—and they will do this very soon after they are fairly established—the sticks which are to support them should be placed in position. It is wise to order these betimes, because then they are ready at the moment they are wanted. Larch, Ash, Hazel, and Chestnut are all employed; the local supply generally governs the kind used. The main point is that they should be tall and strong, so that when firmly fixed they will be capable of supporting a heavy mass of plants. The ends should be sharpened, and forced into the ground to a depth



SWEET PEAS—EARTHING UP AND
STICKING

A, A, soil drawn up to young plants; B, sticks; C, sticks kept apart at the top; D, strands of string fastened to stout stakes placed at each side of row for support of sticks.

of eight or nine inches. If the sticks are set about ten inches apart in lines twelve inches asunder on each side of the plants, they will serve their purpose. The side branches of the sticks will cross each other, and the shoots can be interlaced. It may be necessary to tie the plants to the sticks while they are developing the first thirty inches of main stem, but this is easily done with raphia or green raffiatape. Directly side-shoots begin to form they will attach themselves tightly to the sticks by means of the tendrils.

A plan of treating the plants which is practised by one of the leading growers with the object of getting a succession of prize blooms is worth mentioning, and that is to pinch out the tip of the leading shoot of every alternate plant when it has reached four feet high, serving those left in the same way when they have reached a height of six feet. This plan secures early and late flowers. Of course the plants grow on again, and eventually reach a height of eight to eleven feet.

In view of the beauty of Sweet Pea flowers for decorating rooms, it is gratifying that cutting helps the plants to keep up

a continuous supply; indeed, that object could hardly be secured without it. Probably the pinks will be in most demand, because they are so charming in rooms under artificial light; but the grower must not pick from some plants and leave others. If he desire all to keep on blooming throughout the summer he must pick all regularly.

When there is a show in view it is a good plan to strip the plants of all their flowers about a week beforehand, as this ensures a supply of fine, fresh, bright blooms at the desired time. Flowers that have to be transported in a cut state, whether for private use, sale, or show, should be packed dry, and without cotton-wool. If packed in a wet state they will become spotted.

With reference to the use of Sweet Peas in vases, opinions differ somewhat as to whether they look best associated with their own or other foliage. Probably they never look better than with their own leaves, but there is no objection to associating them with carefully selected plants, such as *Gypsophila paniculata* or the pretty Cloud Grass, *Agrostis nebulosa*. Both of these plants can be grown from seed in the flower-garden. Indiscriminate mixing of Sweet Peas with alien foliage, or with other flowers, should be strictly avoided. The flowers are best gathered by taking the base of the stem between finger and thumb and making a combined squeezing and pulling motion; by this means the stem is drawn out of its socket.

Whether the plants are grown in rows or clumps may depend upon local circumstances, and on the taste of the cultivator. Some of the most successful growers have them in rows, others in clumps. If the row system is adopted, a long row may be made up of short blocks—perhaps only four feet of each variety, if convenient. It may be noted in passing, however, that for general garden effect rows of mixed seed look best.

Clumps look charming when established in selected positions in gardens. They may be placed on lawns, in herbaceous borders, or at fixed intervals beside garden paths. The simplest way of getting a clump is to plant in a circle, which may be from three to nine feet across, according to the space available. The plants can be supported with sticks or galvanised wire frames. A very good plan of supporting clumps is to fix a tall, strong bamboo cane upright as a centre-piece, set the sticks in a circle round it, and tie their tips to the bamboo. This has a neat and finished appearance.

The enemies of Sweet Peas make themselves felt from the very first stage. Birds and mice may attack the seeds when sown out of doors, and as a preventive the seeds should be moistened with linseed oil and then rolled in red lead. Wireworm is very fond of the seeds, and will sometimes find them out even when they are sown in pots and put in a frame, working up through the earth and entering the pots by means of the drainage hole. Wireworm is the most troublesome in land from which turf has been cut. It may be reduced by vigorous autumn cultivation, and dressing with kainit at the rate of seven pounds per square rod; and in spring with a dressing of Vaporite at the same rate. If it is found that the young plants go off when very small, slugs may be suspected. As already mentioned, lime checks them, and they can be reduced in numbers by placing traps in the form of heaps of brewers' grains near the plants. Birds sometimes attack the young plants. Twiggy shoots from the upper part of the sticks check them if placed among the plants. In cases of serious trouble from this source black thread must be strung just above the plants.

Moles are sometimes very troublesome, not in making direct attacks upon the plants, but in disturbing them by throwing up mounds while burrowing in pursuit of worms, on which the mole feeds. In this case the best plan is to buy a steel mole-trap from



SWEET PEAS
By Beatrice Parsons

an ironmonger's, and set it in the run with gloved hands for the mole has keen scent.

Later in the career of the plants they may be harassed by green fly or the Pea Weevil. The former can be destroyed by spraying with quassia water, made by soaking a handful of quassia chips in a gallon of water for a few hours. The striped Pea Weevil (*Sitones lineatus*) sometimes attacks the foliage, and lays eggs among the roots, which hatch into whitish maggots a quarter of an inch long. When the plants are growing vigorously under good garden cultivation the weevil is not a very serious enemy, and may be kept under by dusting the plants with soot occasionally while moist.

As regards fungoid enemies, the mildew *Erysiphe Polygoni* sometimes attacks the plants, and coats them with a grey mould. It is the most likely to be troublesome when the plants are growing on damp, undrained soil; or when they are checked by drought. Two parts of flowers of sulphur and one part of ground lime may be mixed together and dusted on. If yellow blotches are seen on the leaves, which presently become covered with a greyish down, pick off the growths and burn them. If other blotches show, spray the plants immediately with a preventive composed of half an ounce each of soft soap and sulphide of potassium dissolved in a gallon of water. Greenish spots with a darker rim betoken another fungus—*Ascochyta Pisi*. The preventive recommended for yellow blotch may be tried.

In dealing with varieties it may be well to do so in connection with the Classification scheme adopted by the National Sweet Pea Society, and which was first proposed by ourselves. It is a classification by colour. All the varieties of Sweet Peas in general cultivation are separated into fixed colour sections. If we give the various sections in one column, and selections of plain and waved standard varieties in two others, the reader will have the system and the best examples of it under his eye.

CLASS.	PLAIN STANDARD.	WAVED STANDARD.
White.	Dorothy Eckford, Finetta Bathurst.	Nora Unwin, Etta Dyke.
Crimson and scarlet.	King Edward, Queen Alexandra.	The King, George Stark.
Yellow and buff.	James Grieve, Mrs. Collier.	Clara Curtis, Paradise Ivory.
Dark blue.	Lord Nelson.	A. J. Cook (slightly).
Cerise.	Coccinea.	Chrissie Unwin (slightly).
Pink.	Prima Donna.	Countess Spencer, Constance Oliver, Mrs. H. Sykes (pale).
Orange shades.	Henry Eckford, St. George.	Helen Lewis, Nancy Perkin.
Lavender.	Lady G. Hamilton.	Frank Dolby (very slightly).
Violet and purple.	Duke of Westminster.	Rosie Adams.
Magenta.	George Gordon, Captivation.	Menie Christie.
Picotec-edged.	Dainty, Phenomenal.	Evelyn Hemus, Elsie Herbert.
Mauve.	Mrs. Walter Wright.	The Marquis.
Maroon and bronze.	Black Knight, Hannah Dale.	Prince of Asturias, Silas Cole.
Striped and flaked (red and rose).	Jessie Cuthbertson.	Paradise Red-flake.
Striped and flaked (purple and blue).	Prince Olaf.	Princess of Wales.
Bicolor.	Jeannie Gordon.	Mrs. Andrew Ireland.
Marbled.	Helen Pierce.	—

In connection with this question of varieties, it is important to remind readers that the Sweet Pea is in the white-heat stage of development, and new sorts are constantly appearing. Those who are particularly interested in the flower should keep in touch with the Society, and they will then learn about the newcomers as fast as these appear.

A few closing words with regard to the dwarf Sweet Peas. There are two sections—the Bush and the Cupid. The former grow about two feet high, and only require a few short sticks. They flower abundantly, and are well worth growing in small gardens. The latter only grow a few inches high, and do not

require any sticks at all. As far as flower is concerned they are a replica of the ordinary Sweet Peas, and where they thrive they make charming edgings. We grew them very successfully on a low limey bank in a garden on clay and with a somewhat humid climate. They have a pronounced weakness for casting their flower-buds while still quite closed, and to such an extent is this carried in some cases that the ground is littered with buds, and the plants are without beauty. This peculiarity prevents the Cupids from becoming popular.

ANNUALS

THAT large class of plants which botanists distinguish as "Annuals" comprises some of the most popular of garden flowers. It embraces, for instance, the Sweet Pea, and if it contained no other it would possess distinction from the inclusion of this one plant alone. But it also includes the ever popular China Aster, the fragrant Ten-week Stock, the brilliant Poppy (some—others are perennials), the perfumed Mignonette, the gay Godetia, the dear little blue Cornflower, the pungent Nasturtium, the bright Candytuft, the blazing Zinnia, the strident Marigold, and the Verbena-like Phlox Drummondii. This, it will be admitted, is a powerful cohort. Add such others as the Chrysanthemum, the Convolvulus, the Larkspur, the Night-scented Stock, the Salpiglossis, the Nemophila, the Silene, and an idea can be formed of the blank which there would be in gardens if the Annuals as a class were excluded from them.

Every wise flower gardener will make himself acquainted with at least a few kinds of Annuals. His *forte* may be herbaceous borders, or he may give most of his attention to rock gardening; none the less, he will find places which the annuals will fill, and purposes which they will serve. For example, what can replace the Night-scented Stock as a perfume yielder at eventide? Its odour is delicious, and it remains in flower for at least four months. Then the Sweet Pea, the China Aster, and the Ten-week Stock are worth places in every garden. The first is alike graceful, fragrant, and continuous in blooming. The second has handsome flowers of a great variety of hues, and remains in beauty throughout the summer. The third is both sweet and beautiful.



SWEET PEAS
By E. Fortescue Brickdale

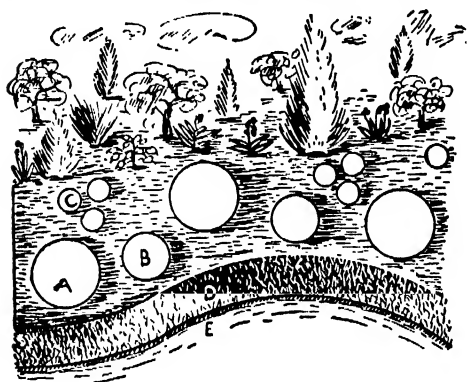
The greatest of all Annuals—the Sweet Pea—is dealt with separately in this work, and we need do no more now than note its membership of the class with which we are dealing, and beg readers to give it that attention to which its intrinsic merits render it so richly entitled. The remainder may be dealt with in three groups—hardy, half-hardy, and tender. The first and second are almost exclusively cultivated out of doors, and the third under glass, but there are a few exceptions to both rules.

Let us in the first place define an Annual. It is a plant which begins and finishes its career within a year. It is sown, it blooms, it ripens seed, it dies, within a period of twelve months. Any plant which is raised in the spring of one year, blooms, lives through the winter, with or without leaves, and blooms again the following year, is not an Annual. In some circumstances certain plants that are generally classed as Annuals do this, notably *Mignonette* and *Eschscholtzias*; but the cases are exceptional. A plant may, of course, pass a portion of its existence in two successive years, and still remain an Annual, so long as it does not seed the first season. Thus *Silenes*, *Nemophilas*, and some others are frequently sown in late summer with the object of getting them to bloom in spring.

To complete definitions, a hardy Annual is one that passes the

whole of its career in the open air; a half-hardy Annual, one that is raised under glass and afterwards planted out; a tender Annual, one that lives out its life under glass.

Hardy and half-hardy Annuals may be used for bulb beds, mixed borders, banks, and even paths where unjointed stones are used. Some of the most important, notably Asters, make charming beds without the support of any other plants; but informality is gained by associating them with other things. Thus, Asters may



ANNUALS—SOWING SEEDS IN BORDERS

A shows how to prepare the ground for large clumps of Annuals; B shows how to arrange smaller clumps; C shows how to arrange clumps of tall Annuals near the back of the border; D, grass verge; E, path.

be mixed with coloured Tobacco (*Nicotianas*) or *Salpiglossis*, both of which are taller and have a lighter habit. The dwarf Stocks make delightful borders. *Phlox Drummondii* forms beds rivalling those of *Verbenas*, which were such great favourites for bedding in years gone by. Poppies make splendid breaks of vivid colour, and will thrive on both light and heavy soils. The singles are ephemeral, but the doubles last long.

The rank and file of Annuals perhaps prove the most useful as clumps near the fronts of mixed borders, but a few selected kinds may be utilised to make up beds of themselves; and if the hints on culture which are to be given are followed they will probably vie with any other beds in the garden. The objection that the plants quickly lose their beauty does not weigh with us. They are fugitive when badly grown, but not when well grown. Such things as *Clarkias*, double white *Matricaria* (the single is a poor thing, seeds tremendously, becomes a nuisance, and should therefore not be admitted), *Godetias*, and double Poppies have done us yeoman service in beds, flowering brilliantly and long. Look, too, at the persistence of *Nasturtiums*. They grow right into the autumn

unless hard frost cripples them, and as fast as new growth is made it produces flowers.

An interesting and charming idea that we have seen carried out is to form garden pathways with old flagstones, not laid closely in parallel lines, if unbroken, but triangularly. Such stones are, however, often broken at the corners, and this is well, because soil spaces are left between them, and in these *Portulacas* are sown. They are most brilliant flowers, and will thrive almost anywhere, not in the least objecting to roasting sunshine. The flowers may be sown a little to right and left of the centre of the path, and they will not then get trodden out of existence.

There is yet another use to which many beautiful Annuals can be put, and that is to cover porches, arches, pergolas, or to droop from window-boxes. The Canary Creeper, *Tropaeolum canariense* or *peregrinum*, is very popular, and the half-climbing forms of *Tropaeolum*, such as some of the forms of *Lobbianum*, are extremely useful. Then there are the *Convolvulus*s, the quaint *Cobaea scandens*, and the pretty *Maurandias*, *Thunbergias*, and *Mina lobata*. One occasionally sees a pergola covered with a collection of Ornamental Gourds, which are half-hardy Annuals, and may be grown like Vegetable Marrows. They vary greatly in form and colour. In the case of some varieties the fruits are of singular shape, in others of rich colour. We know of more than one case of pergolas being furnished in this way, and if the plan is open to the charge of being somewhat fantastic, it is certainly not without both interest and beauty.

Having indicated some of the uses to which Annuals may be put, we may now pause to consider a few important cultural points, and then give selections of the best kinds and varieties.

Dealing first with the soil, we may say that it presents a very simple problem. Annuals do not require the deep, rich soil which *Roses* and herbaceous plants demand; indeed, it is a positive disadvantage in the case of many, notably *Nasturtiums*, because it

causes growth so luxuriant that the plants flower poorly. There are few classes of garden plants, whether fruit, flowers, or vegetables, for which we would prefer a light, shallow soil to a heavy, deep one, but the Annuals certainly constitute one. Even in the case of shallow, dry soil overlying chalk—that bogey of the gardener—we would say that the disadvantage lies with the heavy soil, except for Sweet Peas. Mignonette is at its best and sweetest in light, chalky ground; it thrives to perfection, and blooms gloriously. Clarkias, Godetias, Mallows, Sweet Sultans, Candytuft, Love-in-a-Mist (*Nigella*), Larkspurs—all these will thrive in such land, at which the Dahlia grower, for instance, would be horrified. The pretty Love-in-a-Mist, generally regarded as an interesting, but merely second-class, summer garden flower, becomes a plant of real importance on chalk. It grows freely, flowers abundantly for two or three months, and its blue is the clear, pellucid hue of Italian skies.

We see, then, that as far as Annuals are concerned we may easily be too kind. We may waste labour and manure. We may make the plants grow too well—or, rather, too strongly. There is no need whatever for digging more than a spade deep, and the amount of manure used should not exceed the very modest quantity of one barrow-load per square rod. But while the grower should be scrupulously careful not to overdo the use of forcing manures, he may with advantage draw upon chemical manures of the class which encourage flowering rather than leaf production. Of such are the phosphatic and potassic fertilisers. Of the former bone flour may be named, and of the latter sulphate of potash. An ounce of each of these to the square yard, spread on whenever the ground is dug, but preferably in February or March, will be beneficial, leading to the production of abundance of flowers, and to the enrichment of their colours.

It is an excellent plan to rough-dig the ground in winter, leaving the surface quite lumpy, and then to spread on some wood



FIBROUS-ROOTED BEGONIA

By A. Fairfax Muckley

ashes and soot. Towards the end of March, or in the early part of April, the surface may be raked down, and the soil will probably fall at once into a fine tilth, admirably suited for the small seeds. Stiff clay soil may require special care to get the desired tilth. It will probably be necessary to watch the weather closely, and test the soil frequently with the tools. Our experience with clay soils is that they may be ripe for working down on one day, and then, if the opportunity is lost, may not be in condition again for several weeks. It will help to reduce very obstinate soils if, at the time of the first digging, some old mortar rubbish, or the sweepings from high-roads, are spread on.

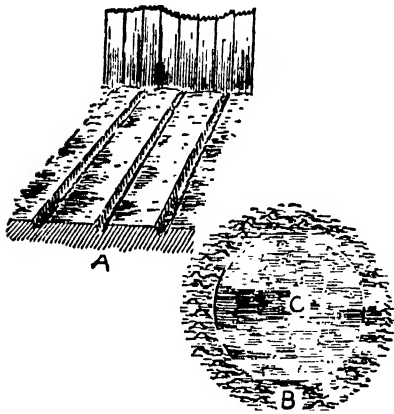
If the Annuals are to be grown in beds to themselves, consideration should be devoted to finishing the soil off neatly. Have the sides raised above the surrounding grass, and clear of the verge, so that a neat edge can be kept with the shears. A border of some dwarf plant, such as Thrift, or Pinks, or an Annual like the Sweet Alyssum (of which there is a very compact variegated form grown under the name of *Koenigia maritima variegata*), will be an appropriate finish to the bed.

Coming to the arrangement of the plants in beds, they could either be put in lines or clumps. We greatly favour the latter, because they look more graceful and informal. If, however, the grower prefers to sow in lines, he will find it convenient to get a board about ten inches wide, and use it for getting straight rows. He can form a drill by turning the rake on end, teeth outward, along the edge of the plank, then simply turn the latter over and draw another drill. This is quicker than constantly resetting a garden line. Unless the flower gardener is very expert he should not attempt to draw straight drills of any length by the eye alone. Rows have a way of getting crooked when this is done.

With respect to clumps, the grower can do one of two things—form a shallow saucer by a quick rotary motion with the palm of his hand, or make a circle by pressing the rim of an inverted

flower-pot into the soil. In the latter case he can, of course, form larger or smaller rings by using different sizes of pot. Whichever plan he adopts, let him avoid getting the clumps too close together. It is a mistake very easily made, especially in a large bed. There seems to be such an immense area of soil that it can never get filled. The rings or patches should be at the least a foot apart for small things, and two feet for large ones. The object should be to provide for a clear space up to the time

that the plants reach the flowering stage, in order to facilitate keeping down weeds and encouraging rapid, healthy growth by the regular use of the hoe.



ANNUALS.—SOWING SEEDS

A shows how to sow seeds in drills; B shows how to sow them in patches or clumps; and C shows the seeds scattered thinly on the prepared soil.

There is room for the exercise of considerable taste in associating the different plants in a bed of mixed Annuals. The colours may be contrasted, for one thing. Then, different height and habit may be considered. It is not wise to put tall things in the centre and arrange the others in regular tiers to the edge, as that may look stiff. Certainly we

would not so far depart from this—the common—plan as to have short things in the centre and tall ones at the edges; but a tall, loose-growing plant may be used here and there to impart lightness to a group of short, compact plants. The amateur will see this principle adopted in the flower-beds in the various public parks and gardens, although the plants employed may not be Annuals. For instance, he will see a Fuchsia, or a Grevillea, drooping over a mass of compact Begonias.

The seed should be sown very thinly. If small, it may be covered half an inch deep; if large, an inch.

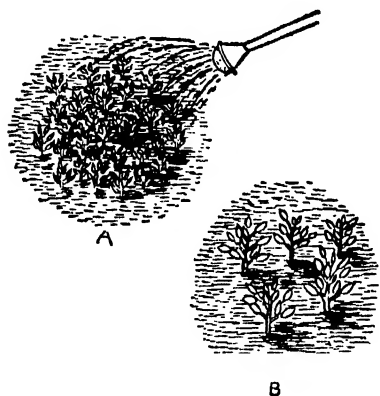
For some unexplained reason a practice has grown up of

treating Annuals as though they differed from every other class of plant in cultivation, and required no attention after sowing. They are regarded as being all the better for being left severely alone. Even if there were no such organism as a slug, and no such cultural error as thick sowing, this would still be wrong; but as slugs and over thick sowing are both very common, they in themselves afford reasons for giving the plants attention. One thing, however, may fairly be said of Annuals, and it will appeal to the amateur who has very little spare time for gardening in summer, and that is, if the early treatment is all right, very little attention of any kind will be wanted after June.

We strongly urge that the Annuals be regarded as real objects of interest from the first, and regularly attended to. If a period is chosen for sowing when the weather is mild and genial, from the end of March to mid-April, and the soil is moist and crumbly, seedlings should be visible in about ten days. If they do not appear within a fortnight the grower should want to know the reason why. We do not say that if seeds of Annuals do not germinate within a fortnight there is necessarily something radically wrong, because we have known seed lie dormant for six weeks in a cold spring, and then germinate well. But we suggest that tardy germination is a fair subject for investigation, particularly if the ground is known to be infested with wireworm and leather-jacket grubs. These greedy pests will eat off batches of seedlings at the moment of germination, so that the plants never show through the ground at all; and often in such cases suspicion fastens on the seedsman. There is very little bad seed sold nowadays, but although seed dealers have improved, ground pests have not. They are as bad as ever they were. In case of unexplained losses in ground that is known to be infested (and soil from which turf has been removed is almost certain to be) the amateur should make a fresh sowing, and he should mix rape dust with the soil.

The arch enemy when the seedlings have come through is the slug. Both snails and slugs are fond of young Annuals, and will often destroy a whole bed of them in a few nights. These hungry marauders come forth in force, with appetites well whetted, in spring. Now, thrushes are great lovers of them, and these birds should be protected and encouraged, in spite of any damage they may do to crops in the summer. Lime is a valuable deterrent of slugs. They detest it in all forms, and it has no ill effect on plants. It is perhaps best applied in the form of dry, freshly

slaked quicklime at night, when the slugs are likely to be feeding. Two applications should be made at intervals of about twenty minutes, because the slug can slough his skin and so get rid of one dose of the hot powder; but the second catches him at a hopeless disadvantage, and finishes him off. Lime water, made by putting a lump of lime of the size of a cocoa-nut in a pail of water in the morning, and straining off the liquid at night, may be poured on the beds after dark, and

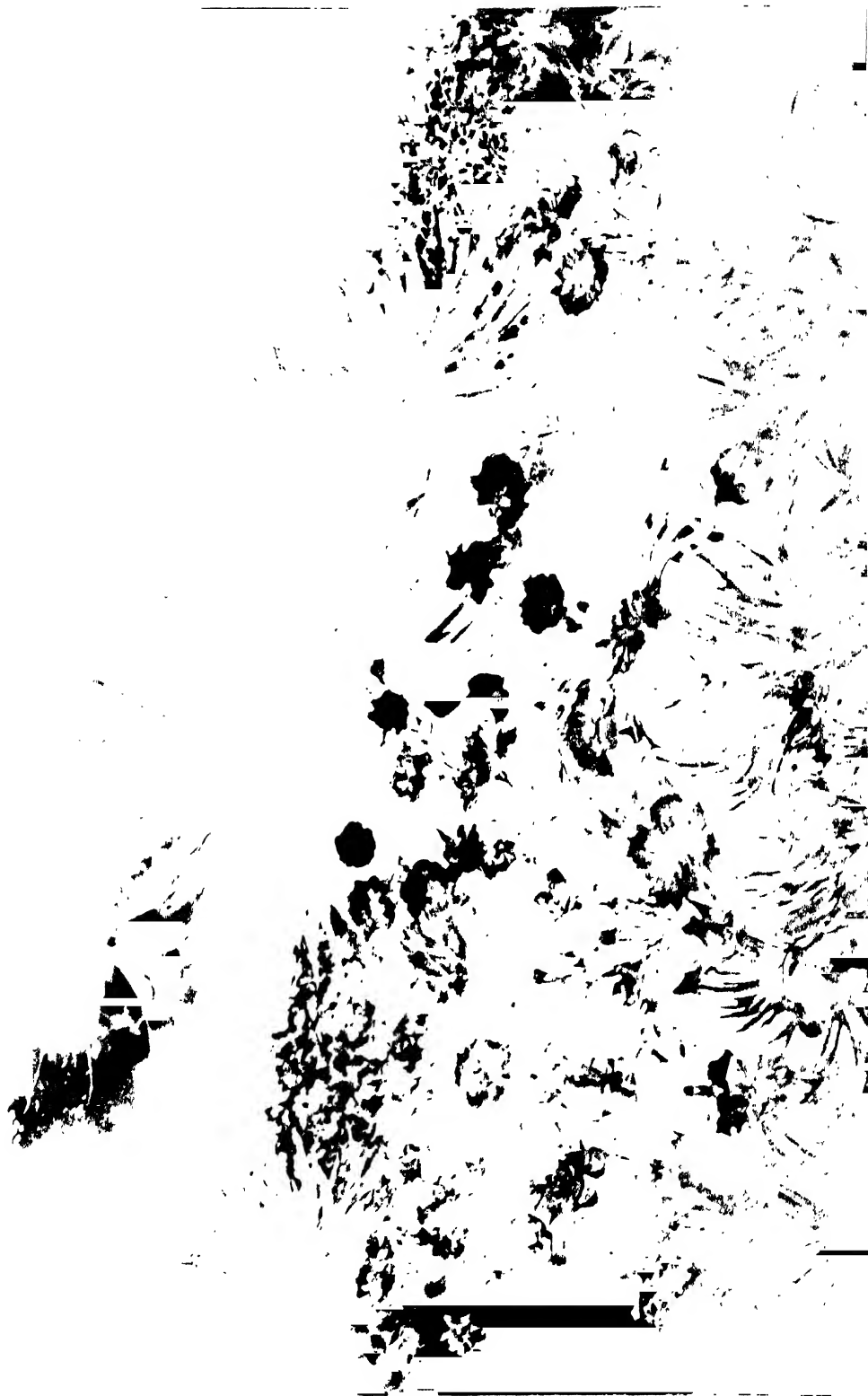


ANNUALS—THINNING-OUT SEEDLINGS

A, watering clump of seedlings before thinning is done; B, the result of thinning-out. Plants growing sturdily.

will thin the slugs down. Another way of reducing them is to put heaps of brewers' grains near the beds as baits. Any slugs or snails captured can be destroyed instantly by dropping them into a vessel of brine.

If the seed has been sown thinly the task of thinning the seedlings will not be a very irksome one. It may be done twice, the first time when they are about an inch high, and the second when they begin to crowd each other after being thinned to a couple of inches apart. Few people are bold enough in thinning seedlings. Or they are so economical in disposition that they do not like to throw plants away. Both weaknesses must be over-



BORDER CARNATIONS

By Hugh L. Norris

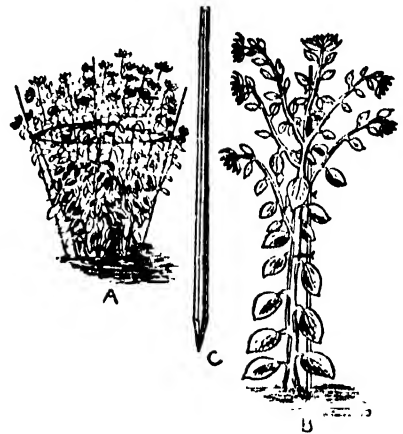
come if the best results are to be secured. Very few Annuals should be nearer than nine inches to each other when they come into flower; and the amateur who makes it a rule to thin to that distance the first year, and bases subsequent practice on the experience which he gains in his first season, will be successful.

Stopping or pinching need not, as a rule, be practised, because the majority of the kinds will develop a naturally bushy habit if they are thinly grown.

Hoeing among the plants is splendid practice. It takes but a few minutes a week to run a hoe among the occupants of a bed when there is a clear space between the plants, and some order in the arrangement of them. Hoeing cleans and aerates the soil, and promotes rapid growth. Staking will not be required in the majority of cases. If needed at all it will be in connection with a few tall, straggly things that are growing in wind-swept spots. Sometimes one bamboo or other stake attached to the main stem will suffice. If not, it will be advisable to chop a few sprayey branches out of the tops of Pea sticks, and utilise them.

If there is one practice which conduces more than another to continuous flowering, it is the picking off of fading flowers before they have time to ripen seed. The logical conclusion from this, of course, is that if flowers must be regularly cut it is just as well to take them while they are fresh enough to be suitable for room decoration, and so not only anticipate seeding, but make use of the flowers. That is so. All Annuals are not suitable for vases, but many are.

Watering will be advantageous in dry weather, but as regular



ANNUALS—STAKING

A shows how to stake weakly-growing Annuals in clumps; B shows how to stake tall growing Annuals; C shows how to prepare the tall stakes, which should be painted dark green.

watering entails considerable time and labour, besides being a source of expense, the necessity of it should be reduced as much as possible. Hoeing, and mulching with a few inches of cocoa-nut fibre refuse, decayed manure, or lawn mowings, both tend to reduce the necessity for watering.

In proceeding to make selections of Annuals, we will give a table of the principal hardy kinds first, and indicate their colours and heights; then select a few of the most valuable of them for special mention.

THE BEST HARDY ANNUALS

KIND.	HEIGHT IN INCHES.	COLOUR.
Alyssum, sweet.	9.	White.
Bartonia aurea.	12.	Yellow.
Candytuft, various.	12.	Crimson, purple, white, &c.
Chrysanthemum, various.	12 to 30.	Yellow, white, purple, &c.
Clarkias, various.	18 to 24.	Rose, purple, &c.
Collinsia bicolor.	15.	Blue and white.
Convolvulus, various.	12.	Blue, white, &c.
„ climbing.	72 or upwards.	Various.
Coreopsis, various.	12.	Orange, yellow, and brown.
Cornflower, various.	12 to 18.	Blue, white, &c.
Eschscholtzia, various.	12.	Orange, rosy red, &c.
Eutoca viscida.	12.	Blue.
Gilia tricolor and alba.	9.	Purple, white.
Godetia, various.	12 to 18.	Crimson, rose, white, &c.
Gypsophila elegans.	12.	White.
Helianthus (Sunflower).	36 to 84.	Yellow.
Kochia scoparia.	24.	Graceful foliage.
Larkspur.	12 to 24.	Blue, white, &c.
Lavatera (Rose Mallow).	36.	Pink, white.
Leptosiphon, hybrids.	6.	Various.
Limnanthes.	6.	Yellow and white.
Linaria, various.	12.	Purple, white, &c.
Linum (Flax).	12.	Red.
Lupinus, various.	30.	Blue, yellow, white, &c.
Malope (Mallow).	36.	Crimson.
Matthiola (Night-scented Stock).	12.	Lilac.
Mignonette, various.	9.	Red, white, yellow.

KIND.	HEIGHT IN INCHES.	COLOUR.
Nasturtium, dwarf.	9.	Scarlet, white, &c.
„ climbing.	36 and upwards.	„ „
Nemophila insignis.	6.	Blue.
Nigella (Love-in-a-Mist).	12 to 18.	Blue.
Phacelia campanularia.	9.	Blue.
Poppies, various, single and double.	12 to 30.	Scarlet, rose, salmon, pink, white, &c.
Salvia Bluebeard.	18.	Blue.
Saponaria calabrica.	6.	Pink.
Scabious, sweet.	12.	Purple, white, &c.
Silene pendula compacta.	6.	Pink.
Sweet Sultan.	12.	Purple, white, yellow.
Virginian Stock.	6.	Pink, white.
Viscaria, various.	9.	Red, &c.

Commenting on some of the plants in the above list, the Sweet Alyssum has already been mentioned as a good edging plant. Thorburn's Dwarf Bouquet is a small variety of it.

The Candytufts are particularly useful, because they come early into bloom, and will grow almost anywhere. A good strain of carmine is one of the brightest and most useful Annuals we have.

The varieties of annual Chrysanthemum called Morning Star and Evening Star, which are different shades of yellow, are very desirable. The amateur should also grow Chrysanthemum Burridgeanum, which will give some darker shades.

Of the Clarkias, elegans rosea must be included whatever else is left out. It is a very graceful plant, one of the earliest to come into bloom, and one of the last to go out.

The Eschscholtzias are very bright, and will grow anywhere. Californica and Mandarin are orange, Rose Cardinal rose. These plants have very finely cut foliage.

The Godetias should be regarded as indispensable. They are not very early bloomers, but they last a long time. They will stand drought better than most plants if they are raised sturdily. Dwarf Pink, Schamini, Lady Albemarle, and Duchess of Albany are good varieties.

The Lavateras (Rose Mallows) are splendid plants for dry soils, blooming profusely and long where most other plants would fade quickly. The best forms are roseo-splendens and its white variety. Both have flowers as large as those of climbing Convolvuluses.

The Night-scented Stock should be sown in patches near the windows of the house, so that the delicious odour which it exhales may enter the house. It is a somewhat straggly grower, and the colour is not bright—in fact, the flowers look quite withered throughout the day, and only present any semblance of beauty at night. But it is very persistent, lasting quite into the autumn.

There are now a very large number of Nasturtiums. The Tom Thumb varieties, such as Empress of India, are very vivid. The variegated leaf variety is interesting and attractive. It rambles freely, and is well worth growing. Sunlight is a yellow of medium height, but self-supporting. The Ivy-leaved Nasturtiums are also good things.

There is a splendid variety of Love-in-a-Mist, called Miss Gertrude Jekyll, which ought to be got. It is worth trouble to procure, being double the size of the old one, and a lovely shade of pale blue. The plant blooms incessantly for three or four months, and does not mind dry soil.

The Shirley Poppies are beautiful singles that one can buy in mixture. They are brilliant but ephemeral, and some of the giant doubles, which can be had in scarlet, white, striped, pink, and other colours, should be grown. They are splendid plants in beds, for their leaves are handsome, and when the huge flowers are thrown up well above the foliage on tall, strong stems, there are few garden plants to excel them.

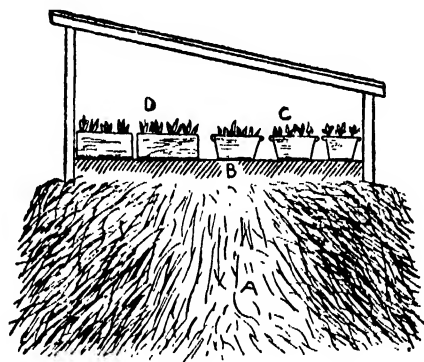
The Saponarias and Silenes share with Candytuft, Bartonias, Collinsias, Limnanthes, Nemophila, and Virginian Stock the merit of being good spring as well as summer bloomers. To flower in spring they should be sown at the end of August.

The Scabious (not strictly an Annual) and the Sweet Sultan

are very fragrant, and they are easy to grow. That other perfumed favourite the Sweet Pea has a chapter to itself.

The half-hardy Annuals are, as we have already mentioned, raised in a frame or greenhouse in early spring, and planted in the garden when the weather is warm enough—say in May or the early part of June. If the amateur has no glass he must raise his Stocks, Asters, Phloxes, Marigolds, and the rest (unless, indeed, he buys what seedlings he wants) by sowing out of doors, but this is not safe before the beginning of May.

Those to be started under glass are best sown in boxes, and if a special compost can be prepared it should consist of equal parts of loam and leaf-mould, with an eighth of coarse sand. It should be pressed firmly into boxes three or four inches deep, which can be bought from a grocer or oil-and-colour merchant, as a rule, at a very cheap rate. Sow in drills about half an inch deep, with the soil in a moist but not sodden state, and cover the boxes with squares of glass if possible, but, with or without glass, with sheets of newspaper, which may be removed when germination has taken place.



HOW TO RAISE TENDER ANNUALS

A, a hotbed ; B, cocoa-nut fibre, ashes, or soil ; C, seedlings in pots and pans ; D, seedlings in boxes.

If the plants are being raised in a house, they should be placed on a shelf near the roof glass ; otherwise they will get drawn and weak. Remove them from the seed rows before they grow thick enough to spoil each other, and set them out three inches apart in other boxes. By the time they have grown sufficiently to again threaten overcrowding, the weather will be warm enough for them to be planted out of doors.

The remarks as to soil and planting made about hardy Annuals apply to the half-hardy. A deep, rich soil is not necessary for

the majority. Asters, it is true, like a fertile soil, but heavy applications of natural manure must be avoided none the less, or "Aster sickness" will follow. Soot, wood ashes, bone flour, superphosphate, and sulphate of potash impart fertility as well as yard manure. Of course, the ground should be well worked and pulverised. The other general remarks made under hardy Annuals apply.

THE BEST HALF-HARDY ANNUALS

KIND.	HEIGHT IN INCHES.	COLOUR.
Acroclinium.	12.	Rose.
Ageratum.	12.	Blue.
Amaranthus caudatus (Love-lies-bleeding).	18	Crimson.
Asters, various.	9 to 24.	Nearly all hues.
Brachycome (Swan River Daisy).	18.	Blue.
Cobaea scandens.	Climbing.	Purple.
Cosmos bipinnatus.	30.	Crimson, pink, white.
Gaillardia.	18.	Orange, brown, yellow, &c.
Helichrysum (Everlasting).	12.	Red, white, yellow, &c.
Layia elegans.	12.	Yellow and white.
Marigolds, French.	12.	Striped.
Marigolds, African.	24.	Yellow, orange.
Martynia fragrans.	18.	Purple.
Mina lobata.	Climbing.	Red.
Nemesia strumosa Suttoni.	15.	Various.
Nicotiana affinis.	24.	White, sweet.
" sylvestris.	36.	" "
" Sanderae.	30.	Red.
Perilla Nankinensis.	18.	Purple leaves.
Petunias.	12 to 18.	Various.
Phlox Drummondii.	9 to 18.	"
Portulaca, single and double.	3 to 6.	"
Salpiglossis.	18.	"
Statice.	12 to 24.	Yellow, rose.
Stocks, Ten-week.	12 to 18.	Various.
Tagetes signata pumila.	9.	Orange.
Venidium calendulaceum.	9.	"
Zinnias, single and double.	18.	Various.

Asters rank very high among the half-hardy Annuals, and they are well worth specialising. There are several types, among which the Dwarf Bouquet, Dwarf Chrysanthemum flowered, Paeony flowered, Quilled, Victoria, Comet, and Ostrich Plume rank high. All can be bought in mixtures, or in assortments of from six to twelve separate colours. The Ostrich Plume will be found particularly valuable for garden decoration, owing to their graceful habit and large, fleecy, richly coloured flowers.

Gaillardias are not always strictly annual, but are generally grown with this class. Their large, circular, warm-tinted flowers are very handsome.

Marigolds are old favourites, and *Nemesia strumosa* Suttoni a new one.

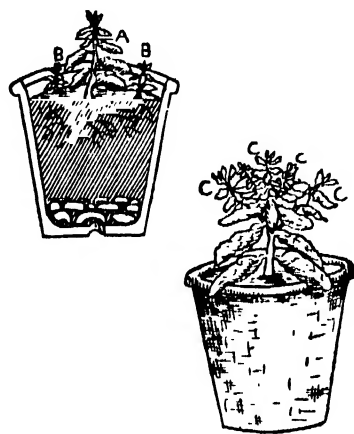
The *Nicotianas* (Tobacco Flowers) are sometimes biennial or perennial in duration, but are generally grown as Annuals; and the same remarks apply to *Petunias*. Both plants should be grown, the former for perfume and evening bloom, the latter for their large, richly coloured flowers.

The *Phloxes* rival *Verbenas*, and the *Salpiglossis* has a grace of habit and a diversity of colouration of its own. Its large bell-shaped flowers are quaintly beautiful.

Stocks are quite indispensable. Like the *Asters*, they can be bought either in mixed colours or in assortments of several distinct hues. The Dwarf German is shorter than the Giant Perfection, but the latter produces the finest spikes of bloom.

Zinnias are very brilliant. They like a little bottom heat to start in. Although slow beginners without warmth, they grow rapidly when once in swing, and are splendid garden plants.

The tender Annuals, which are used for greenhouse or conservatory decoration in pots, are not numerous. The *Balsam*—of



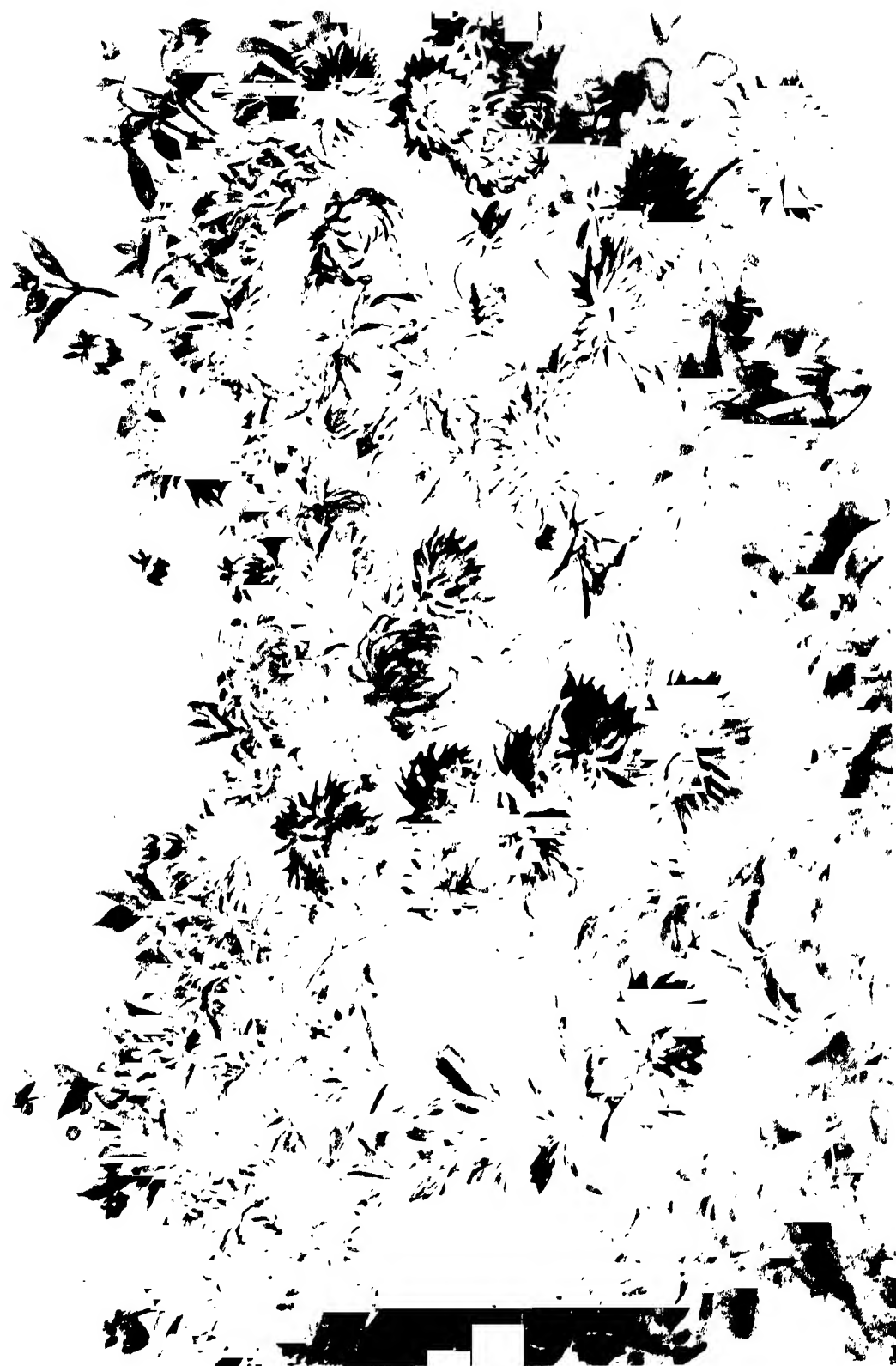
MIGNONETTE IN POTS

A, a strong seedling pinched at the dark line; B, B, weak seedlings to be destroyed; C, C, C, C, young shoots growing from the pinched plant.

which the Camellia-flowered is one of the best types—is one of the most familiar examples. The Browallia is a pretty plant that thrives in a cool greenhouse. Alonsoa Warscewiczii, with bright scarlet flowers, is useful. Dwarf Bouquet Asters are suitable for pots, and Mignonette is often grown in pots, especially for winter blooming; Nemesias may be grown in the greenhouse. Petunias, especially the double fringed, are much in demand for this purpose. The Rhodanthe is a charming everlasting suitable for pot culture. Ten-week Stocks are frequently pressed into service.

All the flowers named can be raised by sowing in boxes in a warm greenhouse in spring, pricking the plants out into other boxes when they get thick, subsequently transferring them to small pots, and from these to larger when the small ones are filled with roots. See fuller remarks as to the management of young plants in the chapter on Greenhouse, Conservatory, and Hothouse Flowers.

In the case of Mignonette and Rhodanthes about half-a-dozen plants are generally grown together in a 5 or 6 inch pot. Mignonette seed is sown direct in the flowering pot, as it does not transplant well.



CACTUS DAHLIAS
By Beatrice Parsons

WATER LILIES AND OTHER AQUATIC PLANTS

IN the great economy of Nature provision has been made for vegetation in all kinds of situations—swamps, deserts, mountains, valleys, cliffs, and seashore. The aquatic plants can vie with any other section in beauty and luxuriance. As might be expected, they are for the most part vigorous growers of succulent habit; but, what is of the most importance from our present point of view, many produce large, beautiful, and perfumed flowers.

In the old days of bedding plants it was very rarely that a water garden was provided. True, on large estates Water Lilies were often grown in the lake which was usually to be found in the park, or some other part of the grounds; but aquatic plants were not, as a rule, grown within the confines of the garden proper. Happily, things have changed, and we now see them in almost all gardens where real interest is taken in plants.

There are two great reasons for the change which has taken place—(1) The removal of the misconception which existed as to the requirements of Aquatics; (2) the increased number of beautiful varieties introduced and exhibited by florists. Because Water Lilies were only grown in large lakes in years gone by, a belief appears to have grown up that they would fail in other circumstances. It was assumed, in the absence of evidence to the contrary, that they would only thrive under the opulent shadow of Privilege. The old white Water Lily, *Nymphaea alba*, was regarded as the legitimate possession of the large landowner. It was placed in much the same position among plants as the peacock was among birds.

With the spread of a love for hardy plants among all classes

of gardeners, and a study of more natural forms of gardening than had enjoyed favour previously, Water Lilies began to receive attention. Experiments soon proved that they were amenable to cultivation in the smallest garden, and not only so, but that they were well worthy of being grown. Hybridisers began to work on the *Nymphaeas*, alike in England, France, and the United States; with the result that many beautiful forms were added to the existing list.

A potent means of bringing home the adaptability of Water Lilies for the smallest places was adopted by some enterprising dealers in hardy plants. It was to form aquatic gardens on a small scale, with real plants and real water, at some of the large flower shows. Thousands of people saw Water Lilies, evidently quite at home, and flowering gaily, within the confines of a corner of an exhibition tent. This was evidence, not to be refuted, that Water Lily culture was open to the amateur of modest means as well as to the owner of large estates.

While the *Nymphaea*, or Water Lily, is unquestionably the most important of aquatic plants, it is by no means the only one worth specialising. In this connection we have to consider plants that grow on the margin of lakes and streams, as well as those that grow actually within the water. And this being so, the magnificent Japanese Iris (*laevigata* or *Kaempferi*) comes within our purview. This is almost as beautiful and valuable a plant as the *Nymphaea* itself, for it grows vigorously, and produces large numbers of immense flowers, most brilliantly and diversely coloured.

Some of the less known Aquatics are very desirable. There is, for instance, the Water Hawthorn, *Aponogeton distachyon*, a charming white flower, most deliciously perfumed. The Water Violet, *Hottonia palustris*, is also attractive. The Yellow Water Lily, *Nuphar luteum*, is a good plant. The Water Soldier, *Stratiotes aloides*, is pretty. The Bog Bean, *Menyanthes trifoliata*,

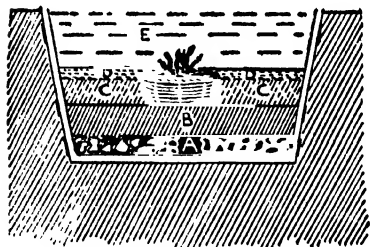
WATER LILIES AND OTHER AQUATIC PLANTS 63

is a delightful flower. Add to these such things as the Water Flag (*Iris Pseudacorus*), the Marsh Marigold (*Caltha palustris*), the Japanese Primrose (*Primula Japonica*), which never does so well as in moist soil near water, and may therefore be included with the Aquatics without over-straining a point; the Grass of Parnassus (*Parnassia palustris*), the Arrowhead (*Sagittaria sagittifolia*), the flowering rush (*Butomus umbellatus*), the Rosy Primrose (*Primula rosea*), to which the remarks made in connection with the Japanese Primrose apply; *Trapa natans* and *Azolla Caroliniana*, both with floating leaves; *Alisma Plantago*, *Limnanthemum nymphaoides*, *Acorus Calamus*, *Pontederia cordata*, the Arum Lily (*Richardia Africana*) in mild districts only—add, we repeat, these things, and a most beautiful selection is provided.

All of the foregoing may be grown out of doors, but a few of the Nymphaeas, such as *gigantea*, *Devoniensis*, and *stellata*; also the beautiful *Nelumbium* (the Sacred Bean or Egyptian Lotus), which is fragrant, and has many varieties; the extraordinary *Eichornia*, and the Lattice leaf plant (*Aponogeton fenestrale*, or *Ouvirandra fenestralis* as it is called), the lace-like leaves of which float on the water, require cultivation under glass.

It cannot be expected that every amateur is in a position to grow the whole of the plants named, but he can at least manage a few Nymphaeas. Should he say that he has no pond, we say: "Make a pool." If he should reply that he has neither space nor means even for this, we still have an answer, and it is: "Grow them in tubs." Several of the smaller sorts, such as *Nymphaea odorata minor*, a small form of the scented Water Lily; *pygmaea* or *tetragona*, white, flowering in June, and its yellow variety *Helveola*; also the hybrids *James Brydon*, *Marliacea carnea*, and *Marliacea chromatella*, which are respectively red, pink, and yellow, do admirably in tubs. These sorts are not like the old British Water Lily, *Nymphaea alba*, in wanting deep water. They are more at home in a depth of twenty to thirty inches.

A tub does not cost much. Small ones may be made by sawing an ordinary paraffin-oil cask (the value of which is about half-a-crown) in halves, replacing the top, of course. In order to get rid



WATER LILIES—TUB PREPARED
FOR PLANTS

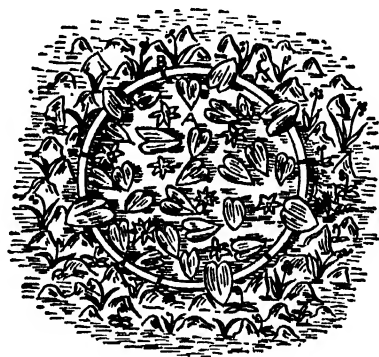
A, stones; B, rotted turves; C, fine loam; D, sand; E, water. Tub sunk in ground. Lily roots planted in basket.

of the paraffin, put some shavings in the tub, set them alight, and roll it slowly over, in order that the whole of the sides may be charred. Have some sand handy in case it is necessary to dash out the flames—which, however, is not likely. Tubs thus prepared may be embedded in the soil, and a few large rockery stones placed round the edge, with Arabis and Aubrietia among them, in order to give a natural appearance. They are then not

in the least unsightly, and they last for several years.

In hot summer weather there will be a certain wastage of water, and the tubs will need to be refilled. There is rarely very much trouble (although it is not very serious after all) in the case of a pool that is made to receive rain water, either by surface drainage from the soil, or from the roof of the dwelling. The winter and spring rains fill it up, and the summer loss by evaporation is usually made up by the occasional rains. The pool need not be a large one, and it may be provided with a fountain or not according to the taste of the owner. It would form an attractive centre to a

Rose garden, or make a cool spot near a summer-house. The exact place for it must be governed by the fall of the water which feeds it, and the cost will depend in great part on the length of the connecting pipes. To open a trench and lay in

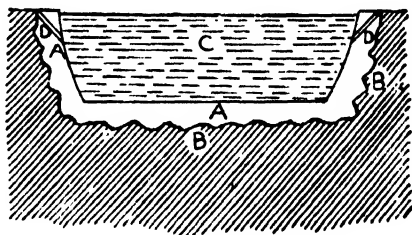


TUB EDGE FURNISHED WITH
STONES AND PLANTS

A, lilies in tub; B, edge of tub; C, plants and stones.

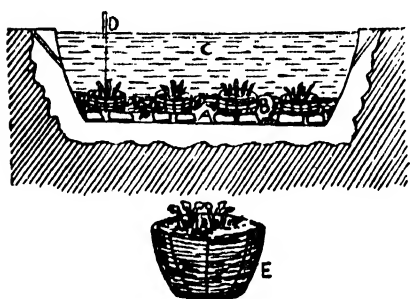
twelve or fifteen feet of 4-inch earthenware drain-pipes is quite an inexpensive matter; and if these are connected with a down pipe carrying rain-water from a moderate roof area, there will be abundance of water for maintaining a pool ten feet across and thirty inches deep.

To make such a pool the earth should be excavated to a depth of three to four feet, and the sides should be gently sloped—"battered," as builders say—so that the pool is wider at the top than it is at the bottom. It must be made watertight, either by puddling with clay, or by lining with concrete. In many places clay is not procurable locally, and it is hardly worth while to cart it from a distance. Where it can be got near it will do quite well if thoroughly adhesive. It should be first of all chopped up into



PONDS FOR WATER LILIES—

A, lining of puddled clay; B, rough edge of original soil left jagged so that the puddled clay may "bite" into it; C, water; D, iron rods embedded in clay to hold it firmly and prevent slipping.



PONDS FOR WATER LILIES—PLANTING

A, stones for baskets containing the Lilies to rest upon; B, good turfy loam; C, water; D, name label attached; E shows Lily root in basket.

small pieces, then watered, and beaten up into a plastic mass that will spread on like mortar. It should be well beaten or trodden as it is laid on, and should form a close lining not less than four inches thick, preferably six. The lining should rise a little above the water level. In the absence of clay, concrete should be used for a lining three inches thick.

With regard to planting, if the pool is puddled the bottom may be covered with six inches of turfy loam, and the plants put into that. If concreted, soil could still be placed in, but it is perhaps preferable to pack pieces of turf round the roots, tie the whole up in a bundle, and lower it down. The plants will very soon establish themselves, and grow vigorously. The planting may be done in April or May.

The edges of the pool need not go bare. Some pieces of rockery stone may be placed round them, as advocated for tubs, and plants grown in the soil between them.

The Water Lilies will throw up successions of flowers throughout the summer. The leaves will float on the water, and between them the large blue, white, pink, or yellow flowers will appear. They like sunshine, and may only partially open, if indeed they attempt to do so at all, on dull days. But in warm, sunny weather they will be glorious, and they will remain open until nightfall, when they will close, to reopen again on the next sunny day. The number of flowers which half-a-dozen plants will throw up is enormous, and if the blossoms get smaller as autumn approaches, they will still be beautiful.

The plants will give no trouble. They will flower incessantly for several months, and make no demands on the cultivator. True, if they are growing in small tubs it may be well to throw some litter over them in severe weather, as the water is so shallow, and might get frozen through; otherwise nothing need be done. Even in a hard winter the plants will not take any harm in thirty inches of water, and that is a very suitable depth for a pool.

A few rushes may be planted among the Water Lilies, to rise above the water.

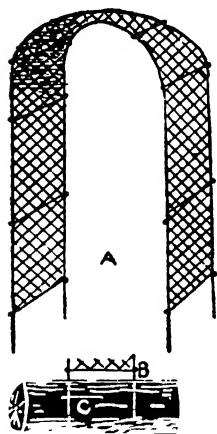
ARCHES, PERGOLAS, PILLARS, AND STUMPS

FEW garden lovers can have failed to observe the remarkable rise in popularity of that phase of flower gardening which is represented by arches and various kinds of rustic erection covered with plants. The modern Rose Garden, as we saw in the special chapter on Roses, is an informal feature. It does not consist merely of a few stiff rows of plants, but is diversified by arches and pillars. Thus broken up it is immeasurably more attractive than the stiff garden.

It is not every flower lover who can form a special Rose Garden, and Roses are not by any means the only plants suitable for rustic structures. There are places in every garden where something informal can be attempted, and there are many plants, including a few good Annuals, that can be flowered in a few weeks from inexpensive seed sown in spring, suitable for covering poles. This being so, we need have no hesitation in recommending this branch of gardening even to those whose means and space are of the most limited character.

It is really where the area available for gardening is the smallest that arches and pillars are the most useful. When a builder has to operate in a crowded city, where land is scarce, what does he do? He goes upward. He puts as much of his erection in the air, and spreads as little on the ground, as is consistent with safety. The amateur who has a very small garden will seek the air also. He will not erect horticultural "skyscrapers," but he will increase the area for his plants by providing them with growing space above the ground.

Wherever a garden is divided into two or more sections arches become appropriate. One may be established at the entrance to each section. If a flower gardener cares to make several arches along a garden path, and connect them by top and side pieces of rustic wood, he can claim to have made a pergola. A pillar, in the gardening sense, is any tall single upright. A stump is a low, bulky portion of timber, with or without laterals, such as the bottom part of an uprooted tree. Pillars are admirable in Rose and other gardens. Particularly should they be used in gardens where there is no pergola, but only a few arches. Stumps will help materially in breaking up stiff outlines. They form suitable supports for semi-climbing Roses, Ivy, and rambling Nasturtiums.



WIRE ARCH

A, arch; B, iron spikes of arch embedded in charred block of wood C.

The arch is the most popular of the quartette which we are now considering, and we may well give a little special consideration to it. Broadly speaking, garden arches may be divided into two classes—metal and wood. Quite a large trade has sprung up during recent years in arches made of galvanised wire. One sees them stood outside the shops of ironmongers, forming a stock article, like fire-grates and door-handles. They are made in various sizes, and they cost only a few shillings each. Small wonder that “Mr. Subbubs,” whose mind has been much agitated as to the adornment of his five-rod garden, and who has seen a photograph of a flower-covered arch in a penny gardening paper which he has bought, pauses, and eventually buys.

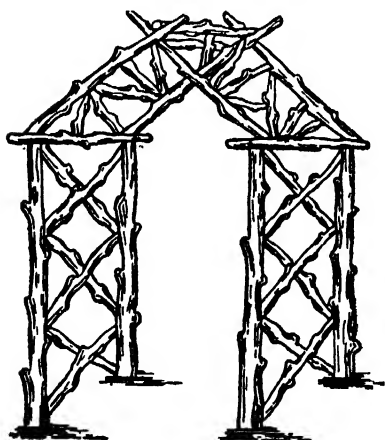
We are not going to speak jocosely of the suburban wire arch. It is not exactly natural; it is more than a little stiff. During its early days, before it becomes covered with verdure, it is admittedly a somewhat harsh-looking and disagreeable object. But it serves a distinct purpose. It provides people who are not in a position



NASTURTIIUMS
By A. Fairfax Muckley

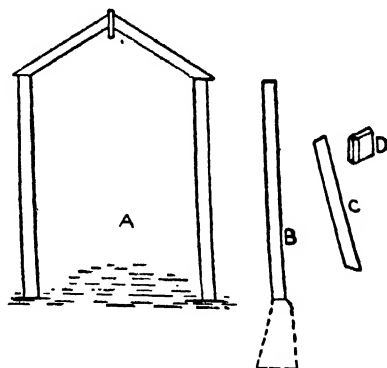
to get rustic timber with a convenient, and practically imperishable, erection, ready made, easily transported, and quickly fixed. But the ironmonger will sometimes be in a position to show a wooden arch, or such a thing will be on view in the horticultural departments that are now commonly to be found in most emporia in the cities. It will not differ very much in price from the wire arch; and if it is made of rustic, twisted, gnarled wood, and suitably stained, it will certainly look a great deal more natural than the wire arch.

Generally speaking, while most Roses and other climbers do very well on wire, they do still better on wood; and on all counts a wooden arch should be preferred to a metal one. It has one point of weakness—its base. No matter how strong the upper part of an arch may be, it is weak if the part which is to be put into the ground is untreated. The portion which is to be buried should be dressed with creosote or tar, or charred by laying the ends in a garden fire.



RUSTIC ARCH

inquiries, and ascertain where Larch poles and twisted oak can be got, then make his bargain and set to work. Constructing rustic arches is interesting work, and affords scope for taste and ingenuity. Care should be taken to fix the main uprights securely. Few inexperienced amateurs realise how thorough this job must



PLAIN ARCH

A, the arch; B, a pillar; C, portion of roof; D, tying-block, for centre of arch.

In the country, where rustic timber is always procurable from wood-dealers, builders, nurserymen, or estate agents, the amateur will probably elect to erect his own arches. He will make a few

be. They accomplish it by removing a few spadefuls of earth. To do it properly a hole thirty inches deep must be made, and as a digger cannot get down that depth in a narrow hole, it follows that a good deal of earth has to be shifted in order to get each upright in. The hole will probably be quite as far across at the top as it is deep.

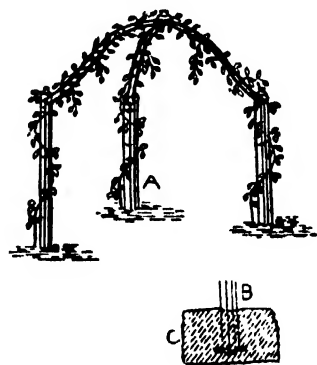
There is one great compensation for the not inconsiderable amount of labour involved in making such holes, and that is that an opportunity is afforded of improving the soil to a good depth, and so insuring benefit to the plants. The lower soil, near the butt of the pillar, must be well rammed. When half of the hole has been filled manure may be put in, and the top soil made firm on it.

In this connection, what applies to the uprights for arches applies also to those for pergolas. The necessity for it must be taken into account when the length of the pergola, and the distance apart of the main poles, are being considered. If a thoughtless decision is come to that the uprights shall be put in six feet apart, a great deal of labour in making holes is entailed, not to speak of the extra expense of so many poles. Nine feet apart is a fair and suitable distance.

All things considered, Larch poles should be preferred for the uprights, alike in the case of arches, pergolas, and pillars. The timber is admittedly not nearly so durable as Oak, but it has four great points in its favour: (1) It is straight; (2) it is natural-looking if its bark is left on; (3) plants take to it freely; and (4) it is cheap. If the bark is scraped off the bottom thirty inches, which is painted with Stockholm tar, the poles will last for several years, especially if they have been cut a good while when bought. If they can be got at a moderate price, poles not less than six inches thick at the base should be procured; eight inches will be better still.

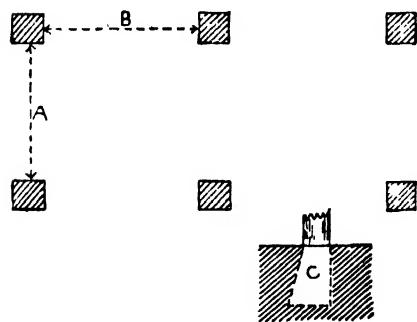
The uprights of an arch may be a little shorter than those of

a pergola, the top poles of which are laid on the level. Six feet will do for the former, but seven feet must be the minimum for the latter. Isolated pillars should not be less than seven feet high. Strong Roses like Dorothy Perkins will be over the top of them in the first season. The side and top timbers of a pergola should be of smaller size than the uprights, both in the interests of weight and expense. The width of a pergola should be not less than eight feet. Both in regard to height and width it has to be remembered that the loose, rambling growth of the plant has to be allowed for; and the better the plants grow, the more freely they produce their flowering sprays, and the bigger the bunches of bloom, the more the space below and between the poles will be reduced.



TRIPLE ARCH

A, the arch; B, iron (or wooden) pillars embedded in block of cement C.



PERGOLA—GROUND PLAN

A, distance between posts, or width; B, distance between side posts; C, ends of posts charred and made firm in the ground.

A pergola is a beautiful and delightful addition to a garden when well made and thoroughly clothed in verdure and blossom. It should not, if possible, be set in a mere strip of soil only a few inches wide, where there is barely room for the plants to be put in, but should be set in borders several feet wide; then not only is there abundant rooting area for the Roses, or whatever climbers are grown for covering the pergola, but also for dwarfier favourites. In this connection we may urge the planting or sowing

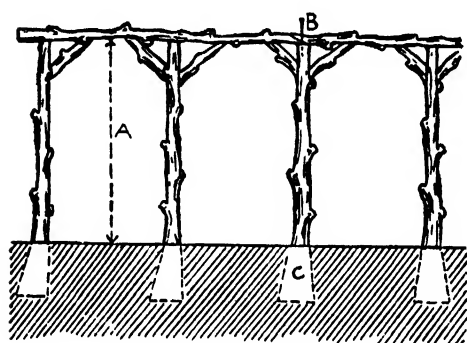
of such perfumed flowers as Lavender, Bergamot, Ten-week Stocks, Wallflowers, Mignonette, Sweet Peas, White Tobacco (*Nicotiana affinis*), Night-scented Stock, Scabious, Sweet Sultan, and Pinks



CANTERBURY BELLS
By A. Fairfax Muckley

in the borders beside the pergola. With well-kept grass as a central path, the pergola is certain to become a favourite place in which to pursue meditative rambles; and those pleasant walks will become more enjoyable if sweet smells soothe the senses.

With respect to climbers, Roses are *par excellence* the plants for arches. A selection of suitable varieties is given in the special chapter on Roses, and we need only emphasise here the desirability of making certain vigorous, healthy, free-blooming varieties, such as Dorothy Perkins, Lady Gay, Crimson Rambler, Carmine



PERGOLA—SIDE ELEVATION

A, height from ground; B, spike to join top pieces of timber; C, thick ends of posts made firm in the ground.

Pillar, Wichuraiana Alberic Barbier, Ruga, Alister Stella Gray, Grüss an Teplitz, and Mrs. F. W. Flight, the foundation. Further experience of Dorothy Perkins satisfies us that it is the most valuable of all climbing Roses, and that it may be definitely preferred even to Crimson Rambler, on the ground that it is superior in cleanliness, in rapidity of growth, and in the length of the flowering season. It is really impossible to adequately state the

value of this superb variety to amateurs.

Clematises, Honeysuckles, and Jasmines may be used as arch, pillar, and pergola plants. These are fully dealt with in the chapter on wall plants, but it may be noted that among the first, Jackmanii, deep blue, Madame Edouard André, red, and Snow-white Jackmanii are three of the most useful. Of the Honeysuckles may be named *Lonicera japonica flexuosa*, very sweet; and aureo-reticulata, the leaves of which are netted with gold. The first named is superior to the common Honeysuckle or Woodbine, *Lonicera Periclymenum*, but the latter may be grown if desired. Then there is the winter-flowering Honeysuckle, *Lonicera fragrantissima*, which produces its sweet white flowers in February or March.



CANTERBURY BELLS

By A. Fairfax Muckley

The most useful of the Jasmines is certainly nudiflorum, which produces its yellow flowers during mild spells throughout the whole of the winter, blooming in advance of the leaves. It is quite hardy. There is a large form of the common, white, summer-flowering Jasmine called *Jasminum officinale affine*; and there is a variety with golden leaves.

The following are other hardy perennial plants suitable for growing up poles: *Aristolochia Sipho* (Dutchman's Pipe), *Periploca graeca*, *Polygonum Baldschuanicum* (which produces glorious fleecy masses of bloom in summer and autumn), Tropaeolums of various sorts, and the large-leaved Vines, such as *Vitis Coignetiae*. *Cobaea scandens* (flowering in summer from seed sown in spring under glass), *Eccremocarpus scaber* (easily raised from seed), and the Passion Flowers (*Passifloras*) are not quite hardy, but may be used.

Among Annuals that may be sown out of doors are the Convolvulus and the Nasturtium; and of those best raised under glass and planted out in May may be named Canary Creeper, *Mina lobata*, Ornamental Gourds, and *Maurandya*. For fuller notes on these, see the chapter on Annuals.

Semi-climbing Roses like *Alister Stella Gray* and *Grüss an Teplitz* are good for large stumps. Tall Nasturtiums may also be sown at the foot of stumps, or Canary Creeper trails led over them. The small-leaved Ivies (see chapter on Walls) are also good for the purpose.

BEAUTIFUL WALLS AND FENCES

IN urging the advantages attendant upon the formation of arches and pillars on owners of gardens, we remarked that they were particularly valuable in small places. The less ground area there is, the more desirable it becomes to create space above the surface. The same line of argument applies in connection with walls. The owner of a large garden can afford to ignore his walls—although he is not in the least likely to do so if he believes in having a beautiful home—but the “small man” cannot. Every inch of space is important. He has so little garden that he has to take advantage of every bit of support for plants, and he should turn to his walls and fences as a readily available source of accommodation for floral favourites.

It is particularly in town gardens that this applies, yet where plants are wanted the most they are used the least. Beautiful flowers can never have a greater influence than when relieving the desolating and depressing bareness of terrace houses in towns and suburbs; moreover, garden ground is almost invariably limited in such districts. But town houses are not, as a rule, covered. We may well ask if there is a good reason for this. Some persons may not plant anything to cover their houses because they only hold tenancies taken up for short terms. The reply to this is that tenancies taken up for short periods have a way of growing into long ones, and, in any case, it will be kind and generous to think of the pleasure succeeding tenants will derive from what we have done. Plants are so cheap that we can be unselfish without having to suffer very severely for it.

Other people may not plant because they fear the loss of the

flowers they grow, at all events in the front of the house. Well, we will not say that we would push generosity to the point of merely providing temptation for pilfering loafers and mischievous small boys, but let it be said that there are beautiful plants which are worth growing for their foliage alone.

Probably the most common cause of house fronts being bare, however, is that the people who occupy the dwellings have not acquired a love for gardening and an interest in plants. Such emotions are being rapidly spread, and as time passes more and more will think of the exterior as well as the interior of their homes—will want pretty plants on the outside as well as attractive wall-papers within.

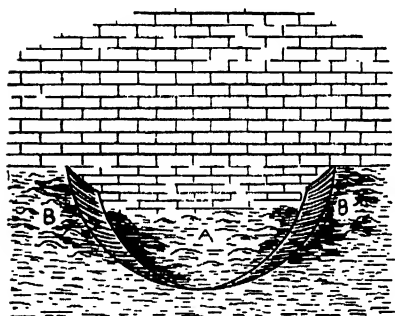
There is no good reason why the back walls of town and suburban houses should not be covered. It is true that some beautiful plants that we should dearly like to recommend, such as the magnificent Crimson Rambler Rose, will not thrive, even with the most skilful and assiduous attention. But, as we shall see, there are other plants which will succeed.

So far as country houses are concerned, it is really deplorable to see so many go bare, in view of the fact that tenancies are rarely very short, that wayside thieves are uncommon, and that there are plenty of beautiful and fragrant flowers which will thrive. Owners of property which they let should encourage tenants to plant by readily giving them permission when they leave to take away any plants which they put in if they desire to do so. Where the relations of landlord and tenant have been agreeable, not one tenant in fifty would dismantle a wall when he quitted a house. The great majority would assuredly leave the plants. Now, a well-furnished wall makes a house attractive to those who wish to hire; the value is increased by the beautiful external covering. Landlords and tenants have an equal interest, therefore, in adorning house walls.

It is delightful to throw a bedroom window wide open in the

morning and look down on a pretty and fragrant display of flowers. All country dwellers can taste this pleasure. Many make the mistake of planting the common Virginian Creeper, and then, instead of seeing Roses and Clematises, they will survey a thicket of aggressive shoots, with very little beauty about them, but with enough vigour to keep up a noisy fusillade on the panes during windy nights, and to mat themselves round the frames in a thick, objectionable tangle.

Before considering the best plants for walls, however, let us take into account the principal things that make for failure and



WALLS AND FENCES—LARGE, DEEP
SITE UNDER A WALL

A, hole made by removing soil to B, B on
each side.

success. To begin with, a wall site with a south or west aspect is generally dry. It is also hot. Heat is not in itself bad for plants, but heat in conjunction with drought is. A wall site is dry because the walls absorb a good deal of heat, because the soil is generally shallow and poor, and because a great deal of the rain which falls is thrown off by a projecting eave or by window-sills. The walls will absorb less heat

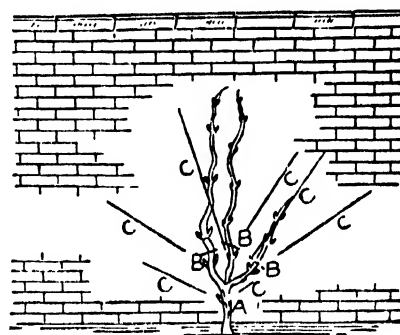
when covered with plants, and they will be covered with plants more quickly if the soil is made deep and rich. Here, then, is our first practical point—improvement of the soil. The soil-area under a wall is often only a few inches wide and deep; the “soil” itself is half stones. Deepen the area to at least two feet, increase it to a square yard for each plant, put in half-a-dozen good, heaped spadefuls of turfy loam and manure, and the whole prospect is changed. With the increased body of soil there will at once be more moisture and more food available, but it will be advisable to give occasional soakings of water (and they should be real soakings, not dribbles) in summer, together with weekly applications of liquid manure.



ANTIRRHINUMS (SNAPDRAGONS)

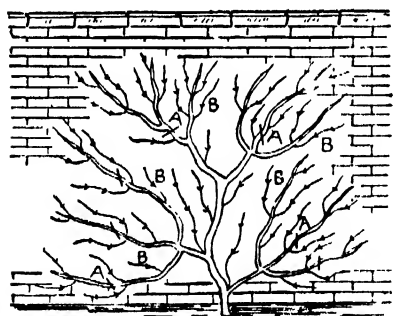
By E. Fortescue Brickdale

Our next important point is the period of planting. Failures often follow because the plants are put out in late spring, when the sun has become powerful. Many amateur gardeners begin their year's work at Easter, and (apart from the fact that it sometimes falls late) they find a good many odd but time-absorbing jobs to do before they get to the purchase of plants. Still worse, many do not start until the bedding-out season, which begins about the middle of May, opens. The May planting of wall plants does not give them a fair chance. With hot soil and a hot wall they are scorched up. Those who want to succeed with climbers and creepers should be encouraged to begin their operations earlier. The plants



CUTTING DOWN CLEMATISES
A young nursery plant

A the main stem of plant ; B, B, B, shoots to be cut off at dark lines ; C, C, C, C, C, C, C, new shoots will then grow from the buds below B, B, B.



ANNUAL PRUNING OF CLEMATISES

A, A, A, A, shoots to be cut off at the dark lines ; B, B, B, B, B, shoots to be allowed to remain on the plant. The above pruning suits the Lanuginosa type. The Jackmanii type should be cut down to within two feet of the ground after the flowering season is past.

ought to be put in by the end of March ; then they will be nicely rooted by the time the hot weather comes, and will not merely be able to stand the heat, but will grow the better for it. What hurts the plant in one set of circumstances benefits it in another.

A third point is pruning. Popular wall plants like Clematis Jackmanii, and the majority of the Roses used for walls, are better for being cut right down after planting. Broadly speaking, an amateur can never do harm by cut-

ting back a newly-planted climber, but may see the plants do badly if it is not practised. Cutting down is not generally done, because a person objects to buying a plant and then throwing away seven-eighths of it ; he thinks it wasteful. It is the reverse. If a plant

is cut back to within a few buds of the ground, the vigour of the roots will be concentrated on those buds, and strong shoots will result; moreover, shoots will come freely from the underground buds. If, however, the root action (necessarily imperfect, be it understood) has to operate on long, existing branches, the dormant back buds, which have so important a bearing on the future welfare of the plant, suffer, and they break weakly, or not at all. A few Roses with superabundant vigour, particularly Dorothy Perkins, will not only bloom abundantly on the original shoots the same year as planted, but form fresh ones of equal or even greater strength; they are, however, entirely exceptional.

Given deep, fertile, moist (but not sodden) soil, early planting, and bold cutting back, wall plants will thrive in most places. Ivy need not be pruned.

Fences must not be overlooked. A rustic fence of Larch up-rights and twisted Oak cross-pieces looks charming when covered with creepers. There is nothing better for clothing it than the little-known but beautiful Rose called Sinica Anemone. It is nearly evergreen, and produces a cloud of charming flowers. We are speaking here, of course, of a divisional, partially decorative fence within the garden, not of a main outside fence which has to repel cattle and sheep. That would have to be built closer, and provided with a thirty-inch depth of galvanised wire netting at the bottom to keep out lambs and rabbits. A climber-covered rustic fence may be used to form a division between flower and kitchen gardens, instead of a hedge or shrubs.

In a consideration of plants for covering walls we must place Roses first. Varieties suitable for walls were named in the chapter on Roses.

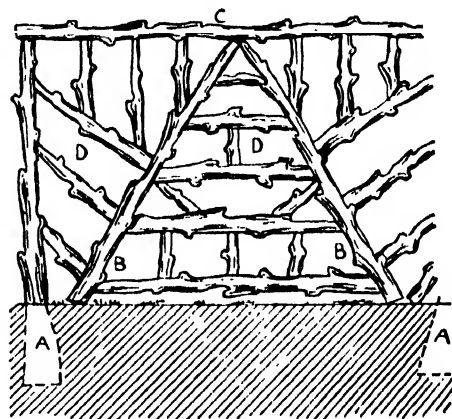
Clematises are very beautiful. There are different types of this flower, and some require more drastic treatment than others in respect to pruning. Few people prune Clematises at all. The plants grow unrestricted year after year. This is not the best

for *Jackmanii*, its white variety, and the splendid red *Madame Edouard André*. These sorts never do so well as when they are hard pruned every year. The flowering shoots of one year may be cut close back to their base in the spring of the following season, soon after they have started growing; and the plants will then push strong new shoots, which will produce far better flowers than would be borne on the weak shoots that would spring from the old flowering growths. The three *Clematises* named will probably meet the requirements of most people, but there are plenty of others available if wanted. *Fair Rosamond*, *Miss Bateman*, and *The Queen*, respectively blush, white, and lavender, are pretty sorts. They flower much earlier in the season than the others, and differ in respect to the method of flowering. Hard pruning must be avoided; all that is needed is thinning and trimming when the plants get crowded and tangled. The white *montana* is also a useful, though small, *Clematis*.

The *Honeysuckles* and *Jasmines* named in the chapter on arch and pillar plants will also do for walls, as, indeed, will the other climbers and creepers referred to there.

There is a beautiful shrub called the *Ceanothus*, which has pale-blue or lavender-coloured flowers, borne very abundantly in summer; and it may be grown successfully on south and west walls. The variety *Gloire de Versailles* is one of the best.

The double variety of *Kerrya Japonica* must not be overlooked when the claims of comparatively dwarf plants are being considered, as they will be for certain positions. This is the plant which bears double yellow flowers nearly as large

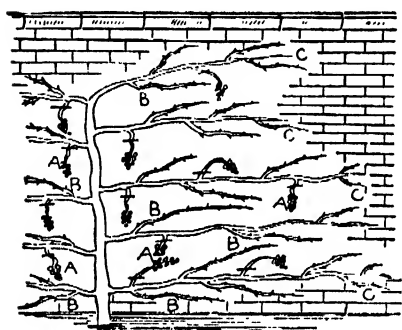


A RUSTIC FENCE

A, A, c'arred ends of upright posts embedded in the soil; B, B, strong pieces of timber for main supports between posts; C, top rail; D, D, small pieces to fill in intervening spaces.

as Gardenias. It is very bright and cheerful, and it is easily grown.

Wistaria sinensis used to be a great favourite in years gone by. It is perhaps less frequently planted now than it was once, owing to the increase in the use of Roses for walls. The plant grows too slowly in its early days to suit those people who like quick effects. When thoroughly established it moves more rapidly, and it is very beautiful when well furnished with its long mauve clusters. Annual pruning to the old wood is good,



PRUNING WISTARIA

A, A, A, A, flowering shoots to be cut back to one or two basal buds; B, B, B, B, strong young shoots which should not be cut; C, C, C, C, weaker shoots which should be cut out.

as it encourages strong new breaks and large bunches of bloom.

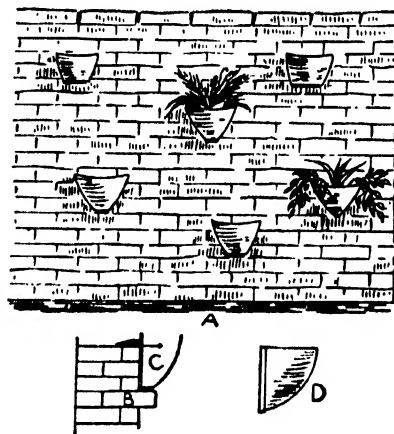
Of foliage plants for walls the most popular is the Virginian Creeper—not the common, which sprawls all over the place, harbours sparrows, and finally casts its leaves late in summer and presents an ugly array of long, bare stalks, but Veitch's variety, popularly known as *Ampelopsis Veitchii*, but now called by botanists *Vitis inconstans*.

This valuable plant grows as well in town as in country gardens, is of neat habit, clings tightly to brick or stone walls by means of its own suckers, clothes the walls in a pleasing mantle of green in summer, and changes to a warm red in autumn.

Ivy is, of course, seen on many old buildings, and on not a few modern ones, but we doubt if it is as extensively planted nowadays as it was in the days before *Ampelopsis Veitchii* came to Great Britain. However, it is still a popular plant, and there are many beautiful forms to choose from, nearly all varieties of the common Ivy, *Hedera Helix*. Those who want a very quick-growing sort might choose the Irish, *canariensis*, the leaves of which are five-lobed. Those who want a very large-leaved

variety should select *Raegneriana*, which has heart-shaped foliage. Any one of the three named (including the common) will cover a large area more quickly than the small variegated-leaved sorts; but these are extremely beautiful, and any person who is not in a desperate hurry to get his walls covered, but takes pleasure in watching steady development, should grow one or two of them. *Rhombea* and *variegata* are two of the best; they have green leaves with white margins.

There is another aspect of wall gardening than that of covering house walls with creepers, and it is to establish dwarf plants in the face, or on the top, of low walls. Some enthusiastic flower-lovers go so far as to drive long spike nails into the face of such walls, in order to provide partial support for small rockery stones, which are then cemented on. By adopting this plan quite a charming effect can be produced. If stones with a hollow upper surface are selected, they will hold enough soil to keep such plants as *Sempervivums*, *Sedums*, *Saxifrages*, *Campanulas*, *Arenaria* (Sandwort), *Arabises*, *Aubrietias*, Dwarf *Phloxes*, *Iberis gibraltarica* (perennial Candytuft), and Cheddar Pinks flourishing. Nor must the Wallflowers and Snapdragons be overlooked; they are natural wall plants.



FORMING POCKETS ON THE FACE OF WALLS

A shows pockets on the face of a wall; B shows section of wall with brick or stone so built in as to form a platform for pocket C to rest on. The pocket is held securely to the wall by means of a nail driven into a wooden plug as shown. C shows end or side face of pocket.

there is no special *Cattleya* house the temperature of the intermediate house may range 10° higher than the cool house. The third is the "*Cattleya* house," of which the temperature averages 10° higher than that of the cool house. The fourth is the "*East India* house," which must range at an average of 15° higher than the cool house.

It is not absolutely necessary that every Orchid grower should possess four houses; such an elaborate equipment is only necessary when Orchids are being specialised. And specialising Orchids is somewhat of a luxury. By the time four substantial houses have been erected and furnished a good deal of money has been spent. A person who is sufficiently well off to afford what is required can also afford the services of a trained grower, in whose experienced hands we can leave him, being certain that he will benefit more from practical advice on the spot than from any which we can give him in these pages.

We must not, however, dispose of the general amateur so lightly. He cannot scatter big cheques about among horticultural builders and Orchid specialists. He cannot drop into an auction room during the luncheon hour and bid in hundreds of pounds for a rare species. Our advice to those amateurs of moderate means who want to devote a good deal of attention to Orchids is that they build one moderate-sized house, and divide it into two compartments, one of which is kept warmer and moister than the other. They will thus be able to grow several of the most beautiful kinds, which we will now proceed to consider. The four most important genera of Orchids are:—

<i>Cattleya</i> .		<i>Cypripedium</i> .		<i>Dendrobium</i> .		<i>Odontoglossum</i> .
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Genera that are not quite so important, yet beautiful and desirable, are:—

<i>Aerides</i> .		<i>Laelia</i> .		<i>Oncidium</i> .		<i>Saccolabium</i> .
<i>Angraecum</i> .		<i>Lycaste</i> .		<i>Phaius</i> .		<i>Vanda</i> .
<i>Epidendrum</i> .		<i>Masdevallia</i> .		<i>Phalaenopsis</i> .		<i>Zygopetalum</i> .



MAUVE ASTERS
By Francis G. James

We have here named sixteen genera—four of the first importance, and twelve of the second.

All these Orchids are divisible into two classes—those which grow on blocks or rafts, or get most of their sustenance from the air, and are termed epiphytes; and those which grow in soil like ordinary plants, and are consequently called terrestrials.

The vast majority of those who start Orchid-growing do so with imported plants, which arrive in a dry—or what appears to be a dry—state. We may very well begin our cultural hints with a few remarks on these imported “pieces,” as they are called. Some of the kinds will have pseudo-bulbs—which are greyish-green swollen growths coming between the roots and the leaves—and others will not.

Taking Cattleyas first, we may say that they have pseudo-bulbs. They are grown in pots, but the compost used is not the loam, leaf-mould, decayed manure, and sand which make up most potting mixtures; it is crocks, sphagnum moss, and peat. The crocks (pieces of broken flower-pot) should be clean. In dealing with imported pieces, which require to be freshened and stimulated into growth before they are fully potted, only crocks need be used; and if they are kept moist, the plants will soon start in the temperature which has been indicated as desirable for them. They may be kept upright by means of a stake firmly fixed in the crocks; the plant should be securely attached to it, as if loosely tied, and subject to shaking, they would be slow in rooting. It is very desirable that a moist atmosphere be maintained.

As soon as the plants have started vigorously, both at top and base, they may be fully potted. At this operation the other ingredients come into use. First of all, the pots are filled two-thirds up with crocks, and then a layer of sphagnum is placed on.



ORCHIDS—AN IMP
OF CATTLEYA

Stake the plant securely, and then with the fingers pack a mixture of fibrous peat and sphagnum, two-thirds of the former to one of the latter, among the roots, and finish off a little above the top of the pot. It is well to use a fairly large pot—one that will permit of extension for about three years—as frequent repotting is undesirable.

Throughout their growing season Cattleyas love abundance of moisture, both at the roots and in the atmosphere. Given this, in a light, airy house with a temperature of 60° (night) to 70° (day)



ORCHIDS—POTTING AN ORCHID

A, small empty inverted flower-pot ;
B, crocks ; C, peat, charcoal, &c. ;
D, sphagnum moss.

throughout the summer, the plants will grow rapidly. They will be the better for light shade in very bright, hot weather. When the growth is complete very little water will be needed. So long as the pseudo-bulbs keep fresh, and show no signs of shrivelling, the plants will be all right, even if they are kept without water for two or three weeks. With the treatment indicated the plants will bloom well.

The flowering season of the Cattleyas varies with the species. Some, and amongst them the small fragrant yellow *citrina*, bloom in spring. One of the best known is *Mossiae*, of which there are many beautiful varieties. This grand Cattleya is imported in enormous quantities, and is very cheap when bought at the auction sales. The body colour may vary from white or blush to deep purplish red or crimson. *Mendelii*, white tinted with rose, is another good species, and of it also the varieties are numerous. Both these bloom in late spring and early summer. *Trianae* is a magnificent winter-flowering Cattleya, with a bevy of lovely daughters. The colour is variable; it may be white with a purple lip. *Labiata vera* is an autumn bloomer, and also has a large number of fine forms. It is rose, mauve, or purple, with yellow.

The Cattleyas have been largely crossed with the Laelias, and some beautiful hybrids have resulted; but they are mostly somewhat expensive.

The Cypripediums, or Ladies' Slippers, are the least brilliant in colouring of our quartette of leading kinds. They do not possess the rich purples of the Cattleyas, or the soft pinks and yellows of the Dendrobiums, except in the case of one or two species, notably *spectabile*, which may be grown out of doors. The feature of the Cypripediums is the delicate harmony of browns, and purples, and bronzes, and silvers. The colours are all quiet. They do not dazzle. They do not arrest the eye. Nine persons out of ten who make the acquaintance of these Orchids would be struck by their quaint form, and not by the colour.

In spite of the fact that Cypripediums are the least brilliant of Orchids, they are among the most highly esteemed by specialists. They had a special vogue a few years ago, and it has not yet died out. Enormous sums were paid for special kinds. They deserve to enjoy particular favour among amateurs also, because they are easy to grow. Several of the best species thrive with very little heat; *insigne*, the most popular of all, is a pronounced cool-house plant, and is one of the few Orchids which may be grown in a general collection of greenhouse plants. Thousands of pieces are imported every year, and sold at very low prices at the auction sales which are held in most of the large towns. The colours of *insigne* are purple, green, and white; and it is a winter bloomer. There are several varieties, differing in colour, and they are desirable, but much dearer than the parent. *Spicerianum*, which has somewhat similar colouring to *insigne*, and is an autumn bloomer, is another species of the first standing which will thrive in a cool house. A third which may be named for this purpose is *Schlimii*, a very brightly coloured species.

Most of the Cypripediums require a warm house, and will not thrive in a temperature which falls below 55° at night in winter.

For the most part they do not have a decided resting period, as the majority of Orchids do; *bellatulum* is an exception, however, to the general run of the species in this respect. A few of the most notable of the tropical species are *barbatum*, purple, green, and white, a spring bloomer; *bellatulum*, white, purple spots, late spring; *Boxalli*, purple and green, winter; *caudatum*, brown, green, and yellow, spring; *Charlesworthii*, green, rose, and white, autumn; *Fairieanum*, purple, green, and white, autumn; *Lawrenceanum*, purple, brown, green, and white, spring; and *Rothschildianum*, purple, brown, yellow, and white, spring. There are a great many splendid hybrids, as the Cypripediums have been more largely crossed than any other Orchids; *Leeanum*, *Harrisianum*, *Morganiae*, and *Sedeni* are four of the best.

Imported pieces should be put into small pots with crocks, and the latter kept moist. With heat and atmospheric moisture they will soon start, and then they can be given some sphagnum moss and fibrous peat. They are terrestrial Orchids. They love a moist atmosphere, and must be shaded from strong sun.

Dendrobiums are exceedingly beautiful epiphytal Orchids, uniting graceful growth with free blooming and exquisite colouring. The flowers are not so large as those of the Cattleyas, but in the species *thyrsiflorum* they are borne in large, massive spikes bigger than the largest Hyacinths, and drooping. This blooms in spring, and the colours are red and yellow. *Nobile* and *Wardianum* are the two most popular Dendrobiums. The former is purple, rose, and white; the latter purple, orange, and white. Both bloom late in winter. There are several charming varieties of *nobile*, but variations of colour may show themselves in the flowers of different imported pieces. *Devonianum*, purple, orange, and white, spring; *formosum giganteum*, yellow and white, spring; *Phalaenopsis*, purple and mauve, several varieties, an autumn bloomer; *Pierardii*, white, spring; and *superbum*, purple, spring, are all pretty Dendrobiums—in fact, the genus abounds in attractive species. They have

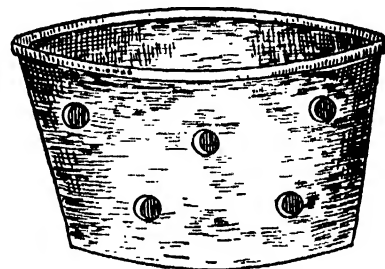


AN OLD GARDEN
By Anna Lea-Merritt

not satisfied specialists, however, and a number of hybrids have been raised, very beautiful in many cases, but dearer.

Dendrobiums are not difficult Orchids to grow, and they are certainly one of the kinds which the beginner should choose. There are, however, considerable differences of habit amongst them, and while those of erect habit, like *nobile*, can be conveniently grown in pots, others, which droop or, like *Phalaenopsis*, need to be near the light, may be grown in baskets made of Teak. The noble *thyrsoflorum* thrives in an Orchid pan, which is a wide pot perforated at the sides with large holes; these pans may also be used instead of baskets, and suspended, if desired.

Imported pieces of Dendrobes should be treated much in the same way as Cattleyas—that is, started in crocks in a moist, close house, and then potted in crocks, sphagnum moss, and fibrous peat. Pieces of charcoal are commonly incorporated in potting large plants. They like heat while making their growth, and should therefore be put in the warmest house available.



ORCHIDS—AN ORCHID PAN

When, however, they cease producing fresh leaves, which may be taken as an indication that the resting period is at hand, they should be put in a cooler house, and given little water.

The last of our quartette, the *Odontoglossum*, is a magnificent Orchid. The flowers combine large size with beautiful colours. The most popular and important species of all, *crispum*, or *Alexandrae* as it used to be called, is a glorious plant. The flowers, which are produced freely in spring, are of exquisite shape and refined texture. The colours, though not brilliant, are charming; and the white or ivory body is frequently broken by bars of brown. The species is largely imported, and pieces can be bought at the price of ordinary herbaceous plants. Forms with special markings have sometimes a high value, and as they

occasionally appear quite unexpectedly in an importation that is supposed to consist only of the common species, there is an added zest in buying and flowering imported lots.

The immense importance of this Orchid lies in the fact that it is very easily grown, and thrives in a cool house. It is quite an amateur's plant, and an extremely beautiful one. We do not say that it can be grown successfully by any amateur in a mixed greenhouse; that is not the case; but it is quite tractable in other respects. It is one of the plants which a person may choose who has not much experience of Orchids, and who is prepared to set apart a house, large or small, for a carefully chosen selection of pretty but easily grown kinds.

Perhaps the next most important *Odontoglossum* is that which botanists tell us should not be classed as an *Odontoglossum* at all, but a *Miltonia*, namely, *vexillarium*. This species, with its large, flattish, soft rose flowers, which are borne in great abundance, is very attractive, and thrives in a cool house. There are many varieties both of this and *crispum*, and the price varies according as they are rare or common.

Other species which may be named are *Cervantesii*, dwarf, blooming in spring, blush, with brown rings; *citrosmum*, dwarf, a spring bloomer, pink with rose and yellow lip; *grande*, dwarf, an autumn bloomer, yellow and brown; *Hallii*, tall, flowering in spring, chocolate and yellow; *luteo-purpureum*, spring and early summer, purplish brown and yellow; *nobile* (*Pescatorei*), medium height, spring-blooming, blush, purple spots, yellow crest; and *triumphans*, tall, spring and early summer, yellow and brown. There are many varieties of the two last.

Some of the most beautiful *Odontoglossums* are of hybrid origin, being the result of crosses made by British and Belgian florists between well-known species. For the most part they are expensive.

Assuming that imported pieces are bought, as being inexpensive, and easily developed into beautiful plants, they may be put

separately into small pots, preferably in the Bracken rhizomes from fibrous Orchid peat. This material can be bought from many florists, and from horticultural sundriesmen. If the plants are kept in a cool, moist atmosphere, protected from bright sun, and kept just moist, they will soon break into growth, and may then be potted in a mixture of fibrous peat and chopped sphagnum moss in equal parts, with a good sprinkling of crocks. Repotting should be done either in early spring or early autumn. When new roots are forming the plants quickly establish themselves. Repotting during hot summer weather is not safe. Never give large shifts. The base of the pseudo-bulbs should be above the level of the rim of the pot. Any old, worn-out pseudo-bulbs may be cut away.

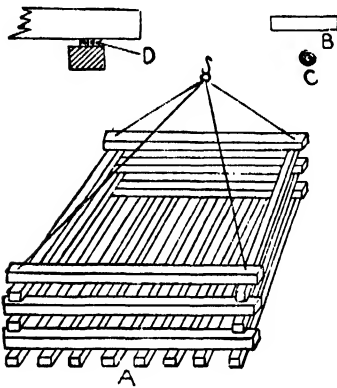
If a house is to be built for the plants, it should be provided with abundant means for ventilation, and with sufficient piping to maintain a minimum night temperature of 45° in winter. At that period growth will not be active, but at the same time the plants will not be entirely quiescent, and they must not be kept entirely without water, or shrivelling of the pseudo-bulbs will take place, and failure result.

During summer the plants will take a good deal of water, and what is more, will appreciate a humid atmosphere. Dry air does not suit them. The pots, stages, and floors should be damped several times a day during very hot weather, the ventilators should be quite open, and shading should be provided. The material for breaking the sun should be fixed a few inches above the glass.

Space will not permit of fuller details of the cultivation of the various kinds of Orchids. We have touched on a few of the principal points, and practical experience and careful observation will help the beginner further on the road to success. He will have gathered that most of the principal Orchids, however they may differ in their requirements in respect to heat, love a moist atmosphere, thrive in peat, sphagnum moss, and crocks; and,

growing mainly through the summer, resting in winter, and flowering in spring, need plenty of water at the former season and little during the winter. He will have learned that in addition to leaves and roots they have bulbous protuberances between, called pseudo-bulbs, and that the plants will be all right if these are kept from shrivelling throughout the winter.

Some Orchids have no pseudo-bulbs, and of these may be named *Aerides*, *Phalaenopsis*, *Saccolabiums*, and *Vandas*. Care is



S—AN ORCHID BASKET

A, the basket; B, small strip of lead;
C, small strip of lead rolled up neatly, D, round the basket wire to keep the bars slightly apart.

needed in dealing with imported pieces of these, as they are often very shrivelled when they arrive. They should be potted in crocks surfaced with sphagnum, put into a warm house, kept only just moist until they begin to grow, shaded, and any flowering spikes which they throw up prematurely promptly removed.

When the amateur has got together a fairly good collection of Orchids, and acquired skill in managing them, his houses will be among the most attractive of any that he or his garden-loving

friends possess. There will be flowers of exquisite texture and the most refined colouring for several months. And the houses will be varied. Some of the plants will be growing in pots on the stages, and others in baskets hanging from the rafters.

Two or three of the hardy Orchids are well worth growing, and a special word of praise may be devoted to *Cypripedium spectabile*, which is a plant of great beauty. There is a white variety of it that is equally desirable. These lovely plants enjoy coolness, shade, and humidity. They would fail in dry soil on the summit of a sun-baked rockery, but succeed in a shady, damp spot at the base. They may be procured from dealers in hardy flowers and planted in spring.



Beatrice Parsons

SALPIGLOSSIS
By Beatrice Parsons

THE CHRYSANTHEMUM

THAT mightiest of all the epoch-making movements of the twentieth century, the awakening of Asia, in particular the rise of Japan and her alliance with Great Britain, has given new interest to those plants which originally came to us from the Far East. It is true that the rise and fall of dynasties, the aggrandisement of some states and the decline of others, the ebb and flow of the turbulent stream of world politics, leave the professed devotee of flowers unmoved. He lives, serene and contented, in a little world of his own. He is obsessed by the future development of the flower which he specialises; he has no thought for its past. But others love to learn all about the flowers which they grow—whence they came, what they were like when history first took them into account, and the part they played in the life of the nation which gave them birth. Imagination seeks play. It conjures up pictures of the contemporary life of the early stages of popular plants. It sees through the murk of drear Western November days the warmth and colour of the lands of the East.

The Chrysanthemum is the Golden Flower, the national floral emblem, of Japan. With the island warriors whose martial prowess has been proved within recent years on the bloodstained fields of Manchuria it holds the place that the Rose does with the allied island race of the West. This fact must have its interest for us. Second only to the Rose as a popular flower in Great Britain, the Chrysanthemum stands first with the highly trained, progressive, ambitious Pacific nation whose future is bound up so closely with our own.

As we see the flower in its most impressive form at our

exhibitions to-day it is, of course, vastly different from the little blossom which first came to us from the East. That which modern florists call the Japanese Chrysanthemum is represented at the shows by a huge flower, nine or ten inches across and as much deep, perfectly double, and a mass of long florets. The colour may be crimson, amaranth, rose, buff, pink, yellow, or white. Chrysanthemum indicum, the forerunner of all this floral glory, was a small single yellow flower, little more than an inch across. If it were placed alongside one of the gorgeous leviathans of the champion cup winner, the contrast would be so great that a common origin would appear to be incredible. The more complete the difficulty of associating the two, the greater the tribute to the work of those florists who have developed the large double from the small single with long, devoted, unwearying labour.

But the modern Japanese Chrysanthemum is only one of a large number of types—the most important, certainly, yet still only one. In addition to it we find Incurved, Reflexed, Pompon, Anemone-flowered, Pompon-Anemone, Large-Anemone, Single, Thread-petal, and Hairy sections. There are, therefore, ten distinct classes. A further division is made in connection with the flowering season; thus, there are early or summer-blooming Singles, Pompons, and Japanese as well as the normal autumn-flowering types. Truly, the cross-fertiliser has done remarkable work with the Chrysanthemum.

It is a platitude to say that the Chrysanthemum is to autumn what the Rose is to summer. Neither flower need be considered as the plant of a season. We are only too glad to get Roses in autumn, and we are delighted to get Chrysanthemums—garden Chrysanthemums, that is—in summer. The Chrysanthemum is a plant of such commanding intrinsic merit and value that it would be extensively grown even if its chief flowering season were July instead of November. It would come into direct rivalry with the wonderful beauty of the Rose, the Carnation, and the Sweet Pea, if

it bloomed in summer; but if that slightly reduced its army of ardent followers, nevertheless it would still be a highly popular flower.

While we claim for the Chrysanthemum that it has beauty enough to enable it to become a floral favourite at any season of the year, we are far from pretending that its late flowering is an unimportant matter. The fact that this magnificent plant is at its best at a period when every other great flower is practically over is one of the utmost importance. It supplies our conservatories, our homes, with a magnificent array of material very cheaply at a season when, without it, flowers could only be got with considerable expense. Few blossoms are more delightful than light, fleecy Chrysanthemums for vases. They look charming everywhere.

Chrysanthemums are town as well as country plants. It is true that the Londoner's autumn bane—fog—often mars choice blooms that were being specially developed for exhibition. But one has only to visit the displays in the public parks of the metropolis to realise that the Chrysanthemum is a real town flower. These park shows are extremely interesting and valuable. They are open free to the public, and they are visited by thousands of the most unrefined people every year. That they exercise a real influence is proved by the increasing number of times that one sees Chrysanthemums grown in town gardens. If the people cannot grow Chrysanthemums under glass they grow them in the open air. In the course of a short railway journey through the south-eastern district of London, made with the object of visiting a large exhibition held by the National Chrysanthemum Society at the Crystal Palace one early November day, we observed Chrysanthemums in scores of otherwise dingy back gardens. The conditions under which they were growing were varied. One person had tried the big-bloom system of culture on outdoor plants, and his success was not inspiring. There were several feet of plant, several inches of flower-stem, and, impotently crowning all, a mere

rag of bloom! Another had plants in a window-box, and they looked perfectly happy. Others, and these the majority, had their plants in borders beside the party fences. The point is that the people were trying, and by no means without success, to grow Chrysanthemums.

Now, what will thrive in London may be expected to thrive in most towns. The fact is, the sulphur in the atmosphere, and the smuts, which are so bad for most plants, have but a slightly deleterious effect on Chrysanthemums. Even fog is not fatal, except from the exhibitor's point of view. It does not kill the plants; it does not really destroy the flowers. What it does is to cause "damping" of large blooms. They contract, droop, and lose their fresh colours. In the same house with large Japanese show flowers that have been spoiled by damping there may be plants of Singles carrying charming vase flowers.

The reference to plants in London gardens may raise an old question: Is the Chrysanthemum hardy? Inherently it is, certainly. It is true that if plants which have been raised from stock under glass, and succulently grown in pots, were left out of doors when cold weather came on they would probably be badly damaged by the first severe frost. The flowers would be spoiled, and the foliage would be discoloured. But that the Chrysanthemum is really a hardy plant is conclusively proved by the evidence of thousands of plants which have lived for years out of doors, passing unscathed through severe winters. The truth is that the Chrysanthemum is hardy or not according to the conditions under which it is grown. It is always well worth while to grow a collection in the garden, for late as well as for early blooming. Severe early frosts sometimes mar the flowers, but in most years no harm is done. If gardeners in Great Britain always hesitated because they were uncertain what the weather was going to be, we should not get half the fruit and flowers that we do now. We must trust to the law of averages.



WATER LILIES

By Lilian Stannard

The Chrysanthemum, we see, is a flower for all classes—for town as well as for country gardeners, for greenhouse as well as garden, for room equally with conservatory decoration. It does not give us great natural diversities in habit, like the Rose. We do not find Chrysanthemums of climbing habit. We do not find varieties suitable for rambling over banks, or varieties for covering arches. But the plant is easily grown and tractable, and with modifications in our system of culture we can get considerable variation in growth. Moreover, by a judicious selection of varieties we can get flowers for several months—from the garden in August and onwards, under glass up to midwinter.

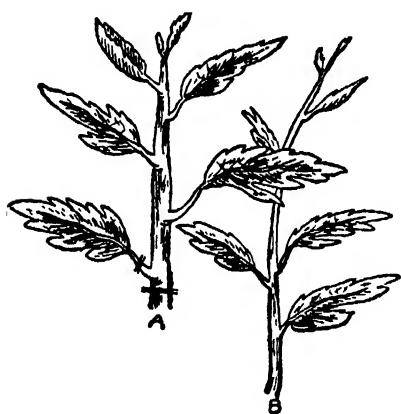
When we come to a practical consideration of cultural matters, we may very well elect to begin with the methods of acquiring a stock of plants. Probably the initial step will be the purchase of a few plants from a nurseryman, and this is likely to become an annual occurrence, for we shall want to add more varieties to our collection; besides, new ones are always coming out.

It is well to order Chrysanthemums in the autumn or winter, even if they are not wanted until the spring, especially if novelties are being bought. The reason is that certain varieties, and particularly new ones, are in great demand, consequently there is a risk of not getting the sorts that are wanted unless they are ordered early.

Cuttings cost less than rooted plants, and are procurable in autumn; but those who buy in November have the care of the plants all through the winter. This does not matter to skilful growers with ample accommodation, but it does to beginners with only one small house, which is probably in a congested state. Amateurs who are in this position will be well advised to buy plants early for spring delivery. They will be quite safe in the hands of a respectable nurseryman. If the plants are received in March they will be sturdy little specimens, established in small pots, and well supplied with roots. We will refer to the best

treatment for them when we have got home-struck cuttings to the same stage.

Cuttings of *Chrysanthemums* may be inserted from November to July for flowering in the following autumn. This is a long period, and provides a considerable amount of latitude. But there is not much for the person who wishes to produce cut blooms of the highest exhibition quality. He must allow his plants the better part of a year. The leading exhibitors strike cuttings in November for winning silver cups in the following November.



CHRYSANTHEMUMS

A, a good cutting. The main stem and lower leaf must be cut off at the dark lines.
B, a bad cutting, too weak.

Those who do not want to exhibit, and are hampered by want of glass accommodation, need not propagate till spring.

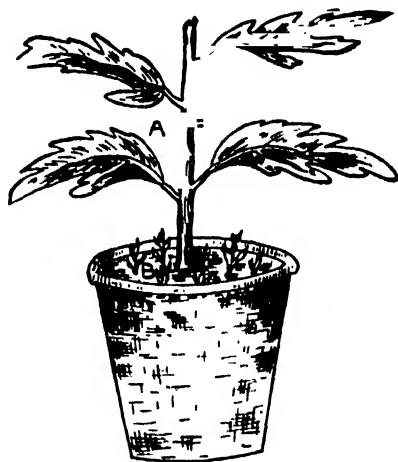
Let us trace the career of a plant "from the cutting to the cup"—the cup which often seems so near as we survey our own flowers, but so far when we have an opportunity of examining those of others.

The best type of cutting for November or December propagation is a short, sturdy shoot springing from the base of the plant. It is not, correctly speaking, a "cutting" at all, but a sucker springing from the stem or root-stock, below ground, and is pulled off with finger and thumb, not removed with a knife. Growers should keep a watchful eye on these basal growths. They come after the plant has done its duty by developing flowers. Top growth has come to an end, and bottom growth—reproduction—begins.

Tall plants in full bloom will have their base a considerable way from the glass, and this spells danger for the suckers. They will elongate in an endeavour to get up to the light, and become "drawn"—that is, long, thin, and weak. In that state they are very poor material for propagating purposes. They should be

dwarf and sturdy, as already hinted. The object of the grower must be to take them off before they have time to "draw." Experienced men will always have an eye to the basal growths, however much engrossed they may be in the flowers; but amateurs are liable to overlook this all-important matter. The suckers should be removed when they are about three inches above the ground.

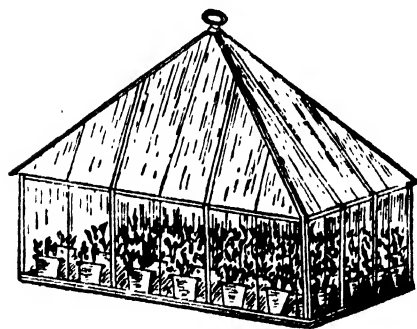
Suppose suckers have not come by the time the plants go out of bloom, what? It is unusual, but it may happen, and the way to meet the case is to cut the plants back to within a few inches of the pot—decayed flowers, leaves, stem all going, save a short stump. This procedure will enable the grower to bring the base



CHRYSANTHEMUMS—CUTTING BACK OLD PLANT

A, old stem cut back to within seven inches of rim of pot; B, healthy suckers growing suitable for cuttings.

of the plant close to the glass. Let him give water if the soil becomes very dry, just as if the plant were in full growth, and suckers will surely come.



SANTHEMUMS

Pots of suckers or cuttings under a handlight

If there are plenty of small (say 3-inch) pots available, each sucker may have a pot to itself; otherwise, several may be put in a larger pot. In the former case one crock, covered with

a little clean moss, over the hole will do for drainage; in the latter the pot may be one-third filled with crocks. Equal parts of loam and leaf-mould, with a tenth part of sand, will make a good compost. Should several suckers be put in one pot, insert them, equidistantly, round the edge, and be careful with the labelling, or all the names will get mixed up. The suckers

should be made quite firm by pressing the base in with a blunt stick.

It will expedite rooting if the pots containing the suckers can be placed together in a warm greenhouse and covered with a handlight. They root more quickly when kept close in this way than when exposed to the air, as evaporation from the leaves is checked, and the less of this that goes on until roots have formed to supply fresh moisture the better it is for the prospects of success. Of course, it is not absolutely necessary that air exclusion should be effected by means of a handlight. We mention this as a stock article specially made for the purpose. But many amateurs will make shift with contrivances of their own. One may enlist the sympathies of his wife, and borrow the spare tumblers. Another will make an enclosure by placing four squares of glass on edge, covering them with a fifth, and pasting strips of paper along the unions. A handlight (or a large bell glass if there are only a few pots to cover) is the most convenient, because it can be lifted and wiped if moisture condenses on it. If the soil is moist when the suckers are inserted it will probably not need watering until they are rooted, but it must not be allowed to get parched.

Directly growth begins water may be supplied, because it is certain that there will be roots ready to imbibe moisture, but overwatering should be guarded against. Moreover, the covering may be removed and air permitted to reach the plants. From this point they should have a position close to the roof glass of the house, in order to keep them sturdy, and air should be given whenever the weather is fine, but cold draughts should be avoided.

The plants will need transference to larger pots as soon as they have filled the small ones with roots, and may be shifted from 3-inch to 5-inch. Those inserted round the side of large pots should be placed singly in small ones directly they have grown sufficiently to begin crowding each other.

In a greenhouse the temperature of which does not fall below



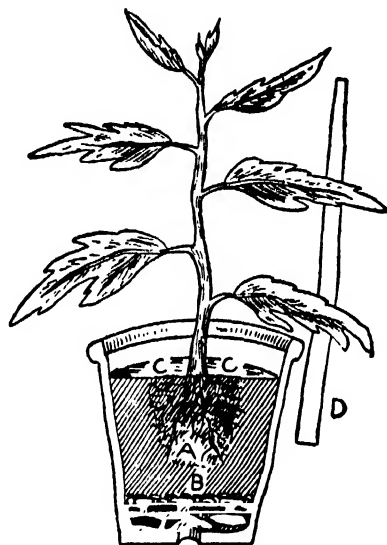
CONVOLVULUS AND ROSES

By Beatrice Parsons

45° the plants will make steady progress. At the end of March they may be put in a frame. The lights should be kept open during fine weather, and only closed during bad spells and at night. A mat or other thick covering should be available for throwing over the frame-light in case of severe frost. We have thus taken the young plant along to the spring, and brought it into line with others which may be bought at that time.

Throughout the spring an unheated frame is the best of all places for young Chrysanthemums. It keeps them dwarf and strong. They receive abundance of air. As the spring advances the lights may be removed altogether for long spells, only being replaced when bad weather threatens. Difficulties will begin, in the case of those whose accommodation is limited, when the plants call for fresh pots. With increased growth and larger pots frames become congested, and there is a risk of the plants becoming dangerously overcrowded. Rather than this should happen, the grower will be well advised to spread some ashes in a sheltered spot, stand a portion of the plants on them, and surround them with boards on edge. A few laths or Pea sticks supporting fish netting, or a sheet of waterproof paper stretched on a frame, will afford protection should the weather take an unfavourable turn.

We will dispose of the various repottings that will be needed together, it being understood that we are still considering plants to yield large flowers. If the largest pots available are 9-inch, the plants may progress to them by three stages—3-inch to 5-inch, 5-inch to 7-inch, 7-inch to 9-inch. The provision of various sizes

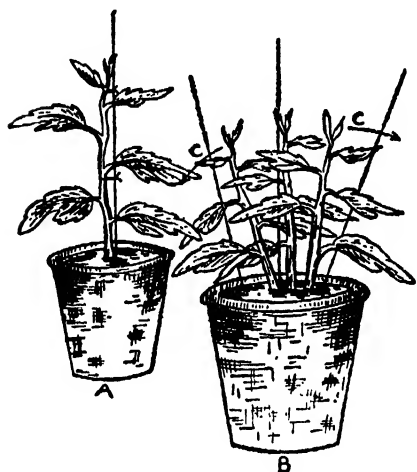


CHRYSANTHEMUMS—REPOTTING

A, ball of soil and roots of plant ; B, new potting compost ; C, C, space of about two inches left for top dressings ; D, a potting stick, blunt at one end, slightly pointed at the other.

of pots, finishing with a fairly large one, makes the culture of show Chrysanthemums more expensive than growing them for ordinary decoration. For the latter purpose 3-inch to 5 or 6 inch, and from the latter to 8-inch, will do. This saves a shift, and utilises a cheaper pot, but an 8-inch pot is not large enough to yield show flowers of the finest quality; a 9-inch or 10-inch is needed. Even with the larger pot the soil at the first potting in

June must be made very firm—in fact, it should be compressed with a rammer.



CHRYSANTHEMUMS—STAKING

A shows how to stake a young plant; B shows how to stake a specimen plant, or where three young ones are grown in a large pot; C, C shows how the stems should be spread out.

The compost should consist for the main part of fibrous loam from decayed turf. The quality of the loam has a considerable bearing on that of the flowers. The turf is best cut from an old pasture ten or twelve months before it is required for use, and stacked grass side downward. When potting time comes a fourth each of leaf-mould and decayed manure, a tenth of sand, and a thirty-second (one quart to each bushel) of steamed bone flour may be added.

If these ingredients are thoroughly mixed, and well rammed into the pot in a damp, but not sodden, state, a good supply of food will be provided for the plants.

At each repotting the pots should be carefully crocked. Too much drainage material is often put in, thus reducing the space for soil. One large crock over the hole, a few others evenly overlapping it, and half an inch of clean moss, insure perfect drainage without taking up much room.

The plants may pass the summer in the open air. A place should be found for them that is open to the sun and air, but is sheltered from rough winds. The pots should be stood on boards or sharp cinders to prevent worms getting in. Amateurs who are

away from home most of the day during the summer, and unable, therefore, to give the plants that incessant care in watering which is so important, may make a trench as though for Celery, lay in a bed of ashes, stand the pots on it, and place more ashes round them. This will not entirely obviate the necessity for watering, but by preventing the hot sun from striking direct on to the pots it will help to avert injury to the roots.

As the shoots move steadily upward they will call for support. This is easily provided in the early stages by one bamboo cane, but later on, when the plants have made their breaks, a single support will not be sufficient. A simple plan is to erect a common framework for a whole row of plants, and it may consist of two strong end uprights, driven firmly into the ground, lighter uprights at 6-foot spaces between, and parallel horizontal wires or cords stretched from end to end. The growths may be tied direct to these horizontals, or, better still, supported by short flower stakes which are tied to the horizontals in an upright position.

Apart from the question of disbudding, to which we will give special attention, the most important cultural operation throughout the summer is unquestionably watering. Plants that are properly watered will, other things being right, grow and flower satisfactorily; but all care and expense in providing good suckers, drainage, soil, and pots will be wasted if the watering is not correct. One day's neglect may irretrievably ruin all chance of winning a coveted prize. It is not that the plants will die, probably, but the buds may be injured, from the exhibition standpoint, beyond recovery. Drought is the thing to fear. If once the soil is allowed to get so dry as to break away from the side of the pot, leaving a distinct fissure, great harm will be done. The soil should really never become quite dry. It should not be sodden, but on the other hand it should not be parched. A moist or damp state constitutes the happy medium.

Except during wet or very cloudy spells, the plants will certainly

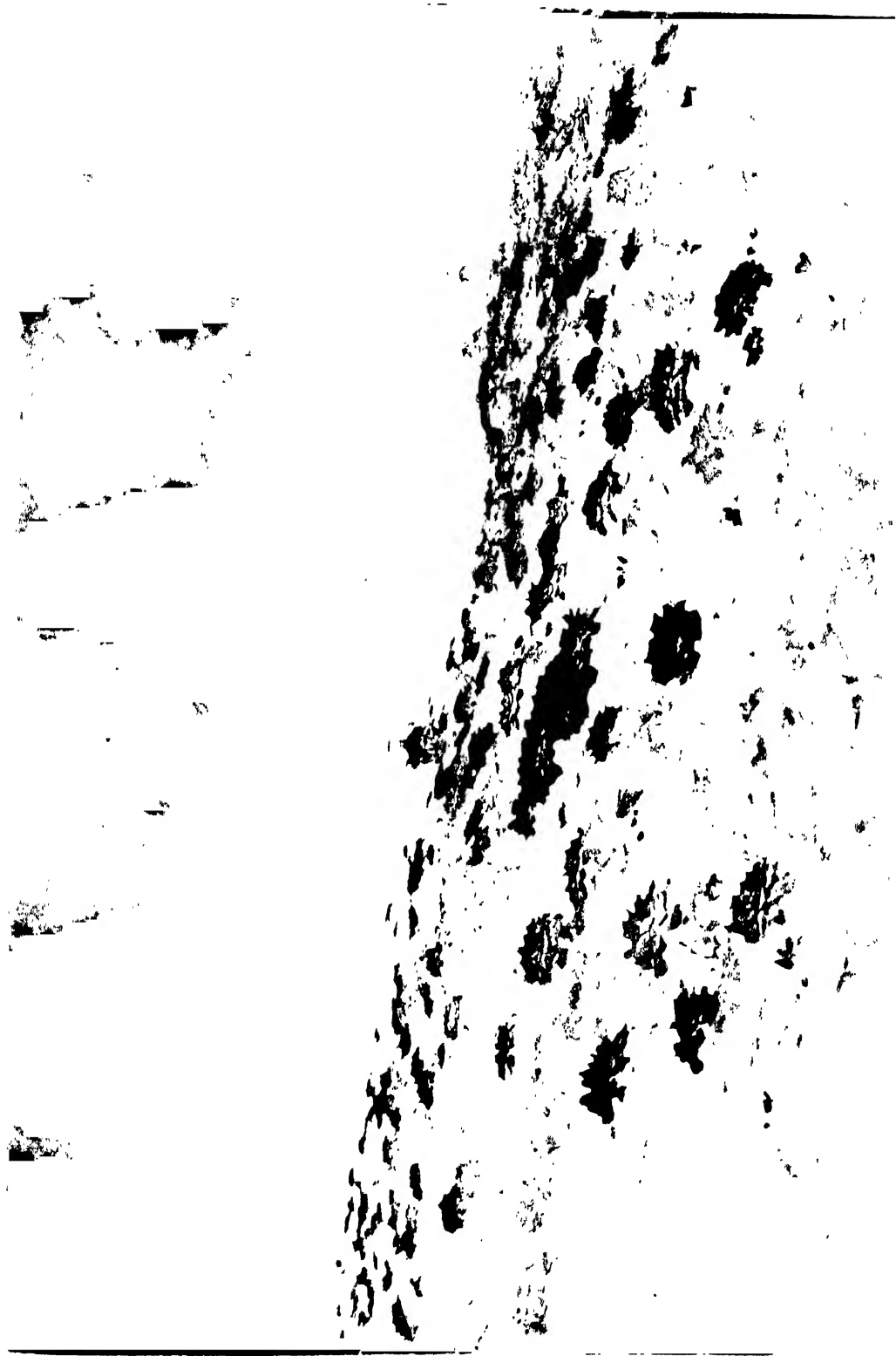
want at least one watering a day throughout the summer, and they may want two or three in very hot spells. A space of a couple of inches will be left at the top when the final potting is done, and if this is filled right up to the brim the supply will be sufficient to well moisten the soil right through. If there is a doubt as to whether water is wanted or not the pots may be rung with the knuckles, and if they emit a hollow sound water should be given at once. If, by any mischance, watering has been overlooked so long that the soil has broken away from the side, the pots should be stood bodily to the brim in a tub of water, and not be taken out until bubbles have ceased to rise and the soil has filled out again.

In October the plants should be placed under glass to flower. The actual date may depend upon the weather. In the absence of sharp frost or persistent soaking rains they may be left out until the middle of the month, but in most districts and seasons it is advisable to house them a little earlier. The house into which they are to go should be well cleaned betimes, so that there is nothing in the way of a prompt transference when the state of the weather renders it advisable.

The reason why it is advisable to leave them out as long as is consistent with safety, and with allowing time for the development of the flowers, is that the heavy dews benefit the plants. They will miss this fine and grateful moisture when they are first put into the house, and may show a tendency to sulk. If kept a little dry at the root for a few days, and given abundance of ventilation, they will get over that and start growing cheerfully again.

While they are swelling their buds, both in and out of doors, they will appreciate liquid manure. It need not be given for the first few weeks after potting, because the food in the soil will be ample to sustain the plants; but subsequently it may be given twice a week. Many of the advertised proprietary fertilisers, which are sold in small tins and bags, are excellent for Chrysanthemums;

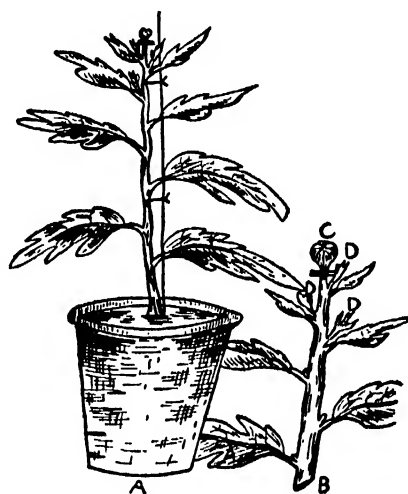
ZINNIAS
By Hugh L. Norris



in fact, some are prepared specially for this flower. Sheep droppings tied in a piece of old sacking suspended in a tub of water give a splendid liquid. Chemical fertilisers may also be used. One ounce of superphosphate and half an ounce of sulphate of ammonia in a gallon of water will be good. The different kinds which are used should be used by turns.

We have glanced at the general points of management other than training and bud development. Let us now consider these highly important matters. If a Chrysanthemum plant is to produce blooms up to exhibition standard, it must only be allowed to carry a very limited number. If its energies are spread over many flowers, they will be too small to win prizes. Not only flowers but branches also must be restricted. This means, of course, an unnatural course of treatment. If a plant is allowed to grow as it likes it will produce many shoots and many flowers. The blooms will be pretty and useful, but they will not carry off any silver cups.

In order to get a clear grasp of the system of training and bud management that yields exhibition flowers, we must hark back to the spring, when our young plants, raised from cuttings, were making steady progress in a frame. They will have one shoot, the main upright one, and no more. Some time in April or May a flower-bud will probably form at the top, and if, directly the grower sees it, he examines the plant, he will find three incipient shoots, or growing (not flower) buds just beneath it. This is called the "first break" of the plant. The early bud is of no use, and must be pinched off immediately, then the growths below will



CHRYSANTHEMUMS—THE FIRST BREAK

A, plant making first break. B shows the top of the plant. The bud forms at C, and this bud must be removed; then the shoots D, D, D grow rapidly, and must be duly staked.

develop into branches. As they grow up they will, of course, form leaves, and they will probably also commence developing side shoots; the latter must be removed as promptly as the first bud was, and the plant rigorously restricted to the three growths which have developed from the main stem, and which will carry the cup flowers that are presently to come and delight the world.

Assuming that the plant continues to make healthy progress, its next effort at bud production is likely to take place somewhere



CHRYSANTHEMUMS—TERMINAL BUD AND
HOW TO "TAKE" IT

A, end of branch on which terminal bud B is borne; C, C, C, smaller side buds which must be removed while they are quite small; D shows result—the central terminal swelling satisfactorily.

between the middle of July and the middle of August. The same condition will be observed with the three shoots as was observed with the one in May, namely, a flower-bud appearing with a cluster of incipient growths just below it. We do not, however, necessarily remove the flower-bud and preserve the growths now. We may do just the reverse. The new bud is called the "crown," and if it has come at the right time for the variety it will develop into a prize flower if it is preserved and the growths below

it are removed. This operation is called "taking the bud."

Observe, we say "if it has come at the right time for the variety." "Are there, then," it may be asked, "differences in varieties with respect to the rate of development from the appearance of the bud to the maturity of the bloom?" Certainly there are, and it is these variations which constitute one of the great problems of Chrysanthemum growers. No rule can be given which will govern all varieties. If there could, growing prize Chrysanthemums would be a much more simple matter than it is now. Generally speaking, buds which come at the middle, or even the end, of July

are too early. The middle of August is nearer the time for most sorts.

If the first "crown" bud comes too early it is pinched out just the same as the first "break" bud was, and the best of the incipient shoots below taken on, the others being removed. If this is done with each of the shoots it follows that the number of flowering branches will not be increased; there will still be only three.

There will be a much shorter lapse of time between the appearance of the second and third buds than there was between the first and second. It will probably be less than a month. The third bud will have the same appearance as the second, and it is called the "second crown." It is this "second crown" bud which is generally taken; in other words, more prize flowers are got from it than from any other. Occasionally it is sacrificed, the disbudding process repeated, and the fourth or "third crown" bud taken. In still fewer cases no "crown" bud is preserved, but the plant allowed to finish with a cluster of buds, the best of which is taken and called the "terminal." Flowers from "crown" and "terminal" buds are generally quite different, although the variety is the same.

It will be seen that the matter of bud selection in Chrysanthemums is a somewhat complicated one, and requires considerable study. But if complex it is also very interesting.

How can a beginner in growing Chrysanthemums for exhibition learn how to manage the different varieties in order to have a number of them all at their best at one time? He can acquire



CHRYSANTHEMUMS—CROWN BUD AND HOW TO "TAKE" IT

A shows end of branch on which crown bud B is borne; C, C, C, side shoots which must be pinched off while quite small; D shows result—crown bud swelling satisfactorily.

knowledge in two ways: (1) By studying the hints which are given in the catalogues of the principal dealers in Chrysanthemums, in gardening papers, and in books on the flower; (2) by his own practical experiments, observations, and records. In his early days as an exhibitor he will certainly need guidance from men of greater experience. How necessary it is to master the question is shown by the fact that one expert, Mr. H. J. Jones, gave a list of no fewer than fourteen types. Here is his key:—

TYPE

1. Pinch the tip out of the shoot about the first week of April, and secure second crown buds.
2. Pinch the plants during the first week of May, and secure first crown buds.
3. Let the plants break naturally, and secure first crown buds.
4. Let the plants make a natural break, and secure late crown buds (approximately the third to the last week in August).
5. Pinch the plants during the third week of April, and secure second crown buds.
6. Pinch the plants during the first week of May, and secure first crown buds.
7. Pinch the plants during the third week of March, and secure second crown buds.
8. Pinch the plants during the second week of April, and secure first crown buds.
9. Allow the plants to break naturally, and secure second crown buds, but propagate early in the year, or during December of the previous year.
10. Pinch the plants at the end of February, and secure first crown buds.
11. Stop early in February, and secure first crown buds.
12. Pinch March 1 for second crown buds.
13. Stop March 1 for first crown buds.
14. Stop first week in March, take up three shoots, stop again the last week in May, and then secure the first bud.

It will be seen that Mr. Jones anticipates the "first break" in a good many cases by stopping or pinching the young plants before it appears naturally. Although his system may appear cumbrous, it is really quite intelligible. In his own case he merely puts a letter to each type, and a corresponding letter to each variety when experience teaches him how to treat it, and he has a clear and plain guide. Probably no better plan could be devised for achieving the object of getting each member of a collection at its best during the first half of November, when most of the Chrysanthemum shows are held.

We will now give consideration to the cultivation of Chrysan-



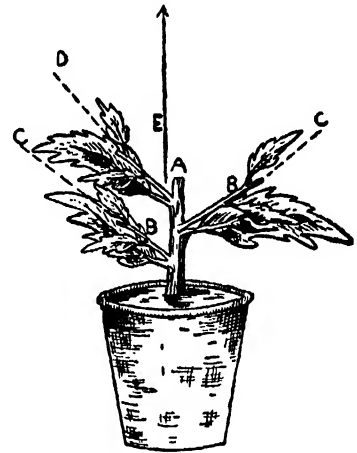
ROSE ARCH AND CAMPANULA
By Beatrice Parsons

themums for decoration, both under glass and out of doors. If we devote less space to these branches of the subject than to culture for exhibition, it is not because we regard them as of inferior interest and importance, but because the procedure, being simpler, can be described in fewer words.

No grower of Chrysanthemums should devote the whole of his conservatory space to plants grown on the exhibition system, for they are mostly rather tall and upright, and show a good deal of pot. He should grow some bush plants in addition, and not restrict them so severely, either in growth or buds. We do not say that he should simply strike cuttings, and then let the plants grow as they like; but he should content himself with a little stopping and disbudding.

In the first place, the plants need not be raised so early as those intended for show blooms. Spring propagation will do quite well, and that is a great advantage, as it leaves more house room for other things that need it more. If suckers are available in spring they may be made use of, but if they are not, then

young shoots from growing plants may be taken, or young plants bought for the purpose. When they have grown to not more than eight inches high the tips may be pinched off, and this will cause buds below to start; these will form shoots, and may be stopped in their turn when about four inches long, with the object of causing still more buds to break. The two pinchings or stoppings indicated will have the effect of causing the plants to form strong side branches, and thus assume a bushy habit. They will differ entirely from the big-bloom plants; they will

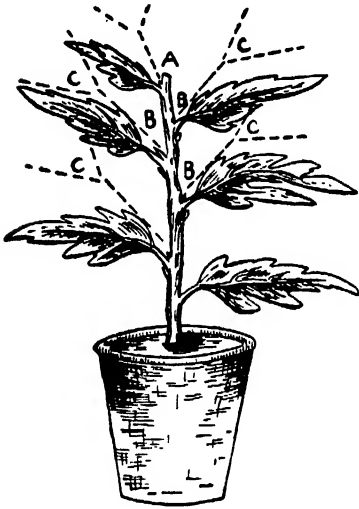


CHRYSANTHEMUMS—CUTTING DOWN

A, main stem cut down to cause later growth and dwarfer habit; B, side shoots growing, and duly stopped; C shows resultant new growth; D shows the top shoot if only one is to be retained and trained upright as shown at E.

be dwarfer and more spreading; they will have more branches. As a rule they will not require any further manipulation in order to make them into neat plants, but they may be pinched again at a later stage if necessary.

If buds show at the tips of the shoots early in summer they should be pinched out, except in the case of plants which are desired to bloom early. We will presently name some varieties that are naturally early bloomers, and others which will flower later.



CHRYSANTHEMUMS—STOPPING TO FORM BUSHES, &C.

A, main stem pinched; B, B, B, resultant side shoots; C, C, C, C shows result of second stopping—two or three branches from each one stopped.

When, with the flowering season approaching, buds are allowed to remain, the question will arise as to whether all which form should be allowed to expand, or whether the clusters should be thinned. It all depends on whether the grower's principal object is a handsome plant or a large quantity of flowers for cutting. If the former, he may thin the buds, allowing about a dozen flowers to each plant; if the latter, he may allow all the buds to remain. Disbudding, it should be remembered, means fewer and larger flowers.

A plan that is adopted by some growers is to allow plants to develop on one stem until the end of May, and then cut them down to within a few inches of the pot. This dwarfs the plants, and they will still produce large flowers if they are restricted to three shoots and crown buds are taken; if not, they will make nice bushes. The upper part of the severed branch can be treated as a cutting and struck. Plants raised thus in May, or even up to the end of July, make very useful short material for standing in front of groups of tall plants and hiding the large pots with a screen of foliage and flowers.

In former years it was only the large-flowered double Chrysanthemums which were grown in pots to any extent, but now single varieties are extensively cultivated in this way. They certainly make more graceful decorative plants than the large-flowered doubles. Most of them spread well and flower freely. The blooms are really like coloured Marguerites, or they may be likened to single Pyrethrums, which are so popular for spring flowering in the garden. They do not require any staking, as they are quite self-supporting. The everyday amateur with a small greenhouse or conservatory may be excused for shrinking from the complex and exacting study of growing Chrysanthemums in pots on the show system, but he need have no fear of trying the plants in the more natural way here described. He will find the plants very tractable, and when they are in full bloom his small structure will be very gay, cheerful, and enjoyable at a period when without Chrysanthemums it would be bare and devoid of charm.

Chrysanthemums are so beautiful for garden decoration that we find it difficult to understand why they are not used more. In part it is doubtless due to the fact that they are generally regarded as indoor plants, and not hardy. It is somewhat curious that the space which Chrysanthemums might have in gardens but for the belief that they are tender is generally given to Dahlias, which are distinctly less hardy. We have no desire to disparage Dahlias. They are beautiful flowers, and we have given them warm praise in another chapter; but we should certainly like to see Chrysanthemums more frequently grown in flower-gardens, even if the space devoted to Dahlias had to be curtailed somewhat.

There is no more attractive flower-garden plant than the brilliant Chrysanthemum. It combines graceful growth with beautiful and varied colours. Glorious masses of colour may be made by growing a few of the brightest varieties in groups. No small advantage connected with the plant is that it may be transplanted

from one place to another even when in bud, so long as the precaution is taken of well watering the soil first, and taking the plant up with a good deal of earth. The work is best done in showery weather. Plants so shifted soon re-establish themselves, and in a few days are growing freely. In due season they bloom well. The importance of this lies in the fact that a succession of flowers can be arranged in a border without overcrowding. Instead of cramming the Chrysanthemums into the border, there to half smother themselves while they are waiting to take the place of earlier flowers when the latter shall have faded, the Chrysanthemums can be planted in good soil in some spare plot, with plenty of room to grow into healthy and vigorous specimens. Earlier things can be cut down when they are over, and the Chrysanthemums planted near them. This greatly extends the beauty of a border. Similarly, beds may be planted with Chrysanthemums after summer flowers have faded.

Although the cottager generally allows his Chrysanthemums to look after themselves year after year, not troubling to take them up and divide them, or to raise fresh stock from cuttings, or to give fresh soil, outdoor plants benefit by attention. The clumps may be split up very much like a Michaelmas Daisy, and when they start growing in spring, planted in fresh, manured soil. But probably the best plants are got by raising a few fresh ones from cuttings every spring. This does not involve much trouble, and it insures young, vigorous plants which will produce abundance of large, brilliant flowers. Soakings of water in dry weather, and occasional doses of liquid manure, will of course benefit the plants.

The Pompon and Single varieties are the most generally useful for outdoor culture, owing to their branching yet neat habit and abundance of bright flowers. They can be cut from freely, and will prove quite capable of yielding a great deal of material for room decoration, as well as making a brilliant display in the garden.



CLEMATIS
By Hugh L. Norris

A few words may be devoted to the enemies of Chrysanthemums before concluding with some remarks about varieties. Some of these enemies are insects, others fungi. The ubiquitous aphid is among the former, and the grower who finds it on his plants, in however limited numbers and under whatever colour, should never rest until he has exterminated it. He may succeed with almost any of the advertised insecticides, or with Quassia water, or with paraffin and soft soap, which have been described in previous chapters. As there advised, the appearance of the very first insect should be the signal for the commencement of hostilities.

There are several fungoid enemies. One of comparatively recent origin is rust, which forms large, brown, wart-like excrescences on the leaves; and if allowed to spread, speedily causes the death of the plant. When it first appeared very serious apprehensions were entertained respecting it. The early days of the Potato disease and the Hollyhock murrain were recalled, and pessimists were not slow to prophesy a fate for the Chrysanthemum analogous to that which had befallen the latter plant. However, things did not turn out so badly as had been feared. It was found that if affected plants were promptly removed and sprayed with liver of sulphur (sulphide of potassium), at the rate of half an ounce per gallon of water, at the first sign of an attack, the disease could be kept under. At the time of writing it has had several years in which to spread, but has not done so; and it may therefore be fairly assumed that the grower has found a means of keeping it under, and that only in case of neglect on his part is it likely to become a real menace to the plant.

Mildew is an old enemy, which coats the leaves with a whitish powder. It generally appears shortly after the plants have been put under glass in autumn, and is a result of sodden soil, or cold draughts, or a heavy, humid atmosphere. Free ventilation, with care in avoiding draughts; a lively, fresh atmosphere; and a soil which, while just moist, is never saturated, will keep mildew at

bay. Should it appear, however, the foliage must be dusted at once with flowers of sulphur.

The main difficulty of the authors of a gardening work which is to have permanent value is that of dealing with varieties. Species are fixed, varieties are ever changing. The novelty of one year is the veteran of the third or fourth year afterwards. In certain very popular flowers, notably Roses, Sweet Peas, Dahlias, and Chrysanthemums, whole strings of new varieties come out every year. For this reason we cannot give lists of varieties that we are sure will be as desirable in a few years' time as they are to-day. We can only name some of those which are the best at the time of writing. They may or may not be superseded a few years hence.

A SELECTION OF JAPANESE CHRYSANTHEMUMS

Algernon Davis, bronze, chestnut shading.

Arthur Du Cros, purplish rose.

Bessie Godfrey, canary.

**Brilliant*, amaranth.

Distinction, salmon.

Edith Jameson, pale pink.

Evelyn Archer, pink.

**Florence Penford*, lemon, chrome reverse.

**F. W. Lever*, cream.

General Hutton, golden yellow.

**Henry Perkins*, yellow, flaked chestnut.

**J. H. Silsbury*, crimson, yellow reverse.

**John Peed*, white, rose edge.

Joseph Stoney, crimson.

Lady Conyers, pink, silvery reverse.

**Lady Hopetoun*, silvery blush.

Lady Lennard, amber.

Lady Talbot, primrose.

**Leigh Park Wonder*, dark crimson.

**Madame G. Rivol*, yellow, shaded rose.

**Madame Paolo Radaelli*, very soft pink or ivory.

**Madame R. Cadbury*, ivory.

**Madame R. Oberthur*, white.

**Magnificent*, crimson, yellow reverse.

Marquis of Northampton, buff, suffused with rose.

**Marquise V. Venosta*, white.

**Master David*, crimson, gold reverse.

**Melchett Beauty*, yellow, flaked rose.

**Miss Elsie Fulton*, white.

Miss Gertie Court, rosy red.

**Mr. F. S. Vallis*, yellow.

**Mrs. A. H. Lee*, crimson.

**Mrs. A. T. Miller*, white.

**Mrs. Barkley*, rosy mauve.

Mrs. F. Coster, orange.

**Mrs. F. W. Vallis*, crimson.

**Mrs. G. Mileham*, rose, silvery reverse.

**Mrs. J. W. Cole*, white.

Mrs. W. Jinks, rose.

Mrs. W. Knox, yellow.

**Norman Davis*, brownish red, yellow veins.

O. H. Broomhead, deep rose.

Olive Miller, blush.

**President Viger*, lilac.

**Rev. R. D. Eves*, white, pink tinting.
Reginald Vallis, rose.
Splendour, yellow, suffused rose.

Valerie Greenham, lilac.
W. A. Etherington, salmon pink.
Wm. Beadle, crimson.

The foregoing are all suitable for exhibition. Those marked * may be chosen for a small collection.

A SELECTION OF DECORATIVE AND CUT-FLOWER JAPANESE

Crimson Source d'or, crimson.
Ettie Mitchell, bronzy yellow.
Framfield Yellow, golden yellow.
Heston White, pure white.
Lady Selborne, white, early.
La Triomphante, white.
Madame F. Perrin, pink.
Madame G. Debrie, soft pink.
Market Gold, yellow, late.
Money Maker, white.

N. C. S. Jubilee, lavender.
Nelly Blake, crimson, early.
Niveus, white, late.
October Crimson, red.
Soleil d'Octobre, yellow, early.
Source d'or, orange.
Tuxedo, bronze, late.
Vivian d'Morel, pink.
Winter Cheer, amaranth, late.
W. H. Lincoln, yellow, late.

A SELECTION OF INCURVED

A. H. Hall, purple.
Buttercup, yellow.
Chas. H. Curtis, yellow.
Duchess of Fife, white, lilac streaks.
Emblème Poitevine, yellow.
Godfrey's Reliance, chestnut, gold reverse.

Lady Isabel, lavender.
Ladywell, lilac.
Mrs. Barnard Hankey, mahogany.
Mrs. F. Judson, white.
Mrs. G. Denyers, pale pink.
Triomphe de Montbrun, crimson and buff.
W. Biddle, lemon.

A SELECTION OF DOUBLE GARDEN VARIETIES

Carrie, yellow.
Champ d'or, yellow.
Claret, dark red.
Fire-light, red, yellow reverse.
Freedom, rosy purple.
Goacher's Crimson, red, yellow reverse.
Harvest Home, red, yellow tips.
Horace Martin, yellow.
Jimmie, purplish crimson.
Le Cygne, white, late.

Le Pactole, bronze.
Lillie, pearly pink.
Market White, cream.
Maxim, chestnut, yellow shading.
Minnie Carpenter, terra-cotta.
Mina Blick, bronzy red.
Rabbie Burns, salmon pink.
Rubis, claret.
White Quintus, white.

A SELECTION OF EARLY GARDEN OR POT SINGLES

Dolly Iniff, crimson, shading off to orange.
Distinction, rosy cerise.
Florence Gillham, white.
Gem of Merstham, crimson.

Good Hope, rose.
Kingcup, yellow.
Mrs. C. Curtis, crimson.
Pink Beauty, pink.

A SELECTION OF LATE-FLOWERING SINGLES FOR POTS

Bronze Edith Pagram, bronze, yellow base.
Canary Bird, yellow.
Crimson Queen, red.
Dainty, yellow.
Emile, pink.
Felicity, ivory.
Florrie King, pink.
Gaiety, salmon.

Gladys Hemsley, pink.
Mary Anderson, blush.
Merstham White, white.
Miss Craig, white.
Mrs. Gwynn Powell, blush.
Reine des Roses, pink.
Reggie, crimson, yellow ring.
Ronald Ferguson, blush.
Sylvia Slade, crimson, white ring.

A SELECTION OF REFLEXED VARIETIES

Chevalier Damage, yellow.
Dr. Sharpe, magenta.
Emperor of China, blush.

King of Crimson, crimson.
Pink Christine, pink.
Progne, amaranth, fragrant.

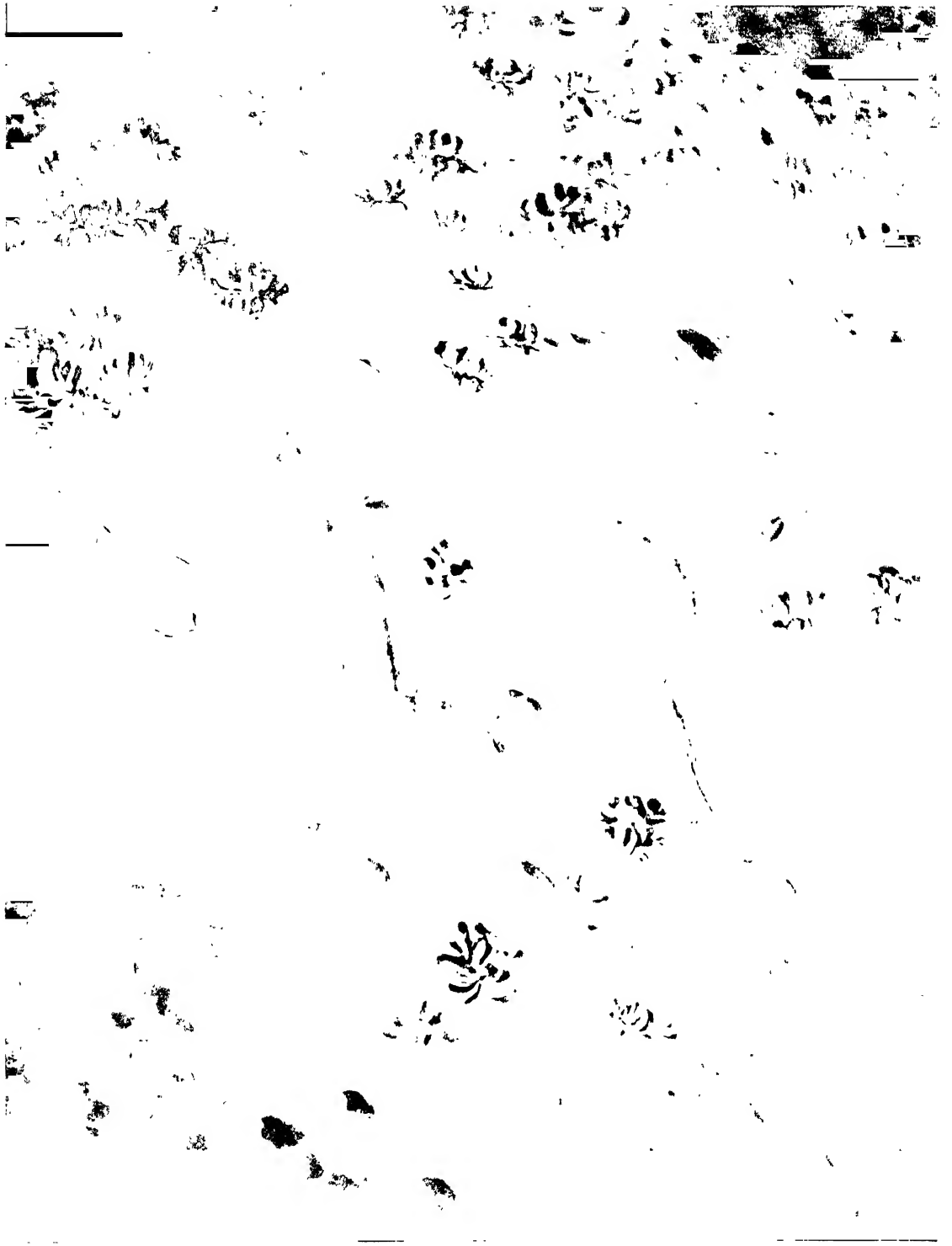
A SELECTION OF LARGE-ANEMONE VARIETIES

Delaware, white, yellow centre.
Descartes, crimson.
Gluck, yellow.

Lady Margaret, white.
Prince of Anemones, lilac.

A SELECTION OF POMPON VARIETIES

Bob, brownish crimson. | *Mlle. Marthe*, white. | *Wm. Westlake*, yellow.



HONEYSUCKLE

By Anna Lea-Merritt

TENDER BEDDING PLANTS

THE Tulip mania is so far back as to be entirely a matter of history, but many people who are still living can remember when the bedding-plant craze was raging. Perhaps some of them may contend that the word "craze" is somewhat too strong, urging that the passion for special Zonal Pelargoniums ("Geraniums") never ran so high, or took such extravagant shapes, as the Tulip rage. Certainly we have not heard of people feverishly outbidding each other, or of houses being bartered, for single plants, of speculation as mad and excited as that which marked the South Sea Bubble; and we have no objection to the substitution of the milder word "obsession," if it is calculated to soothe the susceptibilities of sensitive readers.

ZONAL PELARGONIUMS ("GERANIUMS")

Two-thirds of the way through the last century flower gardeners were undoubtedly obsessed by the Geranium as a flower-garden plant. It was the undisputed queen of the border. New varieties were sought after eagerly by amateurs, and as a consequence they became a valuable commercial commodity. Raisers gave as much attention to them as they give to Sweet Peas, Roses, and Dahlias at the present time. Prices ruled high, and the fortunate raiser of a distinct and (as judged by the standards which ruled gardening then) particularly valuable variety reaped a golden harvest.

We are old enough to remember when the leading trade and amateur florists clustered eagerly round a new variety of Geranium, when an earnest committee of experts sat in solemn conclave considering its merits, when the greenhouses of the leading nurserymen

were packed with novelties in Zonals, when gardeners led their visitors proudly from bed to bed and from ribbon border to ribbon border, and when as much as a guinea a plant was paid for a newcomer. The Geranium is largely grown still, but those proud days have passed, and it is very unlikely that they will ever return. The bright old plant has had its hour of glory, and must now be content with playing a minor part in the designs of flower-lovers.

It is to be noted that in the old days Geranium raisers worked for leaf quite as much as for flower beauty—indeed, it was the markings of the foliage, in the form of a zone, that first gave the class its distinctive name of Zonal. The popular name of Geranium should never have been applied to the plant, because there is a genus of hardy plants which has a proper botanical claim to the name Geranium. Nor are the true Geraniums obscure and commonplace plants. They are grown in thousands of gardens, and are very beautiful. They differ from the pseudo-Geranium (the Zonal) in being perfectly hardy. This case of popular nomenclature, with its attendant confusion, places a weapon in the hands of those who support a classical system of naming plants, and who drive home the point that an indiscriminate and unsystematic plan of naming must inevitably lead to confusion. It is to be feared that there is only too much truth in this. We say feared, because we are firmly convinced that the stiff Latin names of many beautiful plants are a real obstacle to their general cultivation, and we would gladly see names given to them which are easier of pronunciation by the multitude.

The popular Zonal Geraniums of former days, which were grown for the beauty of their leaves, were so numerous that they had to be divided into sub-sections, such as Golden Tricolor, Silver Tricolor, Golden Bronze, Black-leaved, Yellow-leaved, and White-edged. The famous Mrs. Pollock, the advent of which caused quite a furore, was a Golden Tricolor, and another renowned variety in this class was Peter Grieve. Golden Harry

Hieover was a well-known representative of the Bronze section, and Crystal Palace Gem of the Yellow-leaved, while Flower of Spring held an assured place among the White-edges.

In recalling the varieties which were most largely grown for the beauty of their flowers, the names of Vesuvius, Henry Jacoby, John Gibbons, and Master Christine come back to us. They were the popular varieties of our boyhood, and on them we practised the art of making cuttings for the first time. They were planted in beds, and they formed the most important constituent in ribbon borders. We may remind readers that a typical old-time "ribbon border" consisted of a row of scarlet Zonal Geraniums, a row of yellow Calceolarias, and a row of blue Lobelias. Do many readers, owners of beautiful herbaceous borders, smile at so crude a combination? If so, let the smile be one not wholly of contempt, but one containing a flavour of sympathy and indulgence. At the worst, our forefathers were making towards beauty. They were brightening their home surroundings with objects of cheerful innocence at a period when the bulk of the nation was enamoured of coarse and brutal sports. Their influence was assuredly not wholly pernicious. They won many converts to the pleasure and benefits of flower-growing who may have had no higher ideal previously than the prize-ring. They aroused a love of flowers in simple minds which could never have been influenced by the canons of high art. We may, indeed, say of the old-style flower gardening that it was well calculated, by its bright simplicity, to attract the elementary natures which invariably preponderate in a commercial nation, just as simple and obvious melodies win countless people to a love of music.

In due course cultured flower-lovers got tired of ribbon borders, but they did not give up gardening because they had grown weary of brilliant Geraniums. They asked for something more artistic. They took a step forward. They widened their borders, and filled them with beautiful flowering shrubs and herbaceous plants. The

change was admittedly one for the better, and while retaining an affection for the bright old favourites of the mid-Victorian era, we readily agree that modern flower gardening is of a higher artistic standard than the old. We think, however, that the Zonal Geranium has not yet done all the good work of which it is capable, any more than "Home, Sweet Home." There are still great possibilities left in it. The old varieties which we have named are still with us, and they are supported by many modern sorts. It has to be remembered that large numbers of people who gave up growing Zonals for summer flowering in the garden retained them for blooming under glass in winter; indeed, the plant progressed almost as rapidly in one direction as it receded in the other. Raisers of Zonals did not find their "occupation gone"; they only found that they must work in a different direction. Amateurs gave up asking for Zonals with handsome foliage, and for bedders, but they clamoured even more eagerly than before for Zonals with large, round flowers, bright colours, and good habit that would bloom throughout the winter.

The thing that might have been expected has happened. With the plants closer under their eyes in the greenhouse than they were in the garden, amateurs have come to pay more attention to form of flower than they used to do. The modern Zonal must have a perfectly circular bloom, with the florets overlapping evenly. A flower of uneven outline, and which shows gaps between the petals, is not cared for. If a variety has these imperfections, amateurs will not grow it, however dwarf and free flowering it may be.

Those readers who have come into flower gardening in recent years, and under the influence of the modern school, may read with some surprise remarks which tend to suggest that, in spite of the decline of the Zonal in large flower gardens, the number of varieties has increased. It most certainly has done so. There is a far larger selection of sorts than there was twenty years ago.



CHRYSANTHEMUM (PYRETHRUM) ULIGINOSUM
By Hugh L. Norris

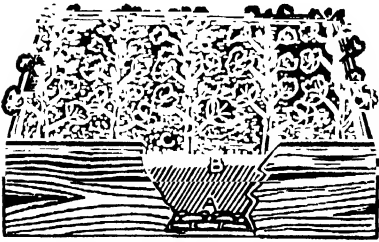
And the fact that they have been developed with an eye rather to the winter conservatory than the summer garden must not lead to the assumption that they are useless out of doors. Many of them are quite suitable for the garden.

Town and suburban gardeners are still very partial to the Zonal. They grow it in their little plots and on their window ledges. What braver, brighter flower is there for a box in a hot place than the Zonal? What more useful plant for a sun-scorched border? The country cottager uses it too, and so does the farmer. The latter does not generally study flower gardening very closely. He has other fish to fry. As long as he is successful with his cattle, he does not mind being told that he is behind the times with his flowers. He will put in a ribbon border quite cheerfully to this very day.

Let us, hoping for still more good from the bright, cheerful, and enticing effect of the Zonal Geranium, take it quite seriously as a bedding plant even in these days of hardy flowers. Let us recognise that it is a force—still eminently worthy of attention. We will not suggest that beds should be filled with it, nor even that ribbon borders of the time-honoured red, yellow, and blue should be formed, but we will hint that a few colonies of good Zonals—say clumps of a dozen plants—might very well be arranged in mixed borders. Again, there are hot, dry borders under walls which often go bare because of the difficulty of finding plants that will endure the poverty and aridity. If strong, well-rooted Zonals are put out and given a few waterings, the chances are that they will thrive, and flower brilliantly for several months. Further, there may be tubs or vases to fill. This is not exactly bedding, but it comes near it.

Zonal Geraniums are generally planted in spring, and at that period they are undeniably tender, although it takes more than a slight frost to kill them in autumn, when the stems have grown thick and woody. The spring plants have been made tender by

being grown under glass, possibly in a crowded state. The provision of accommodation for the plants in spring presents one of the real drawbacks to the culture of Zonals for bedding. During



ZONAL GERANIUMS INSERTED IN A BOX
FOR BEDDING PURPOSES

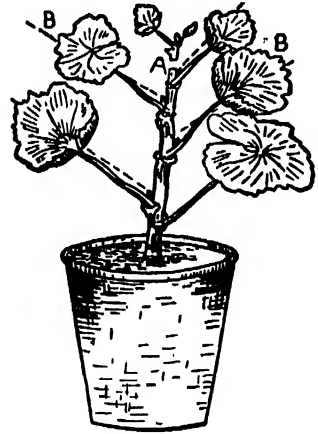
A, drainage ; B, sand on the surface of the
soil ; C, cuttings inserted at 4 in. apart.

the winter there is very little trouble, because the plants are quite small (those, at all events, which were struck as cuttings the previous summer), and they will remain quiescent if the house is cool. But with the warmth of spring comes growth, and demands for more space, which is not always provided easily. Directly the weather permits, the

plants should be put into frames or pits, but thick mats must be kept handy for putting over the glass on cold nights. The cooler the atmosphere and the nearer the plants are to the glass, the sturdier they will be. They will grow, but not rapidly.

They should be kept in the boxes wherein they were placed in autumn as long as possible, but not so long that they get very crowded, as that weakens them. Rather than this they ought to be put singly in small pots—say 3-inch or 4-inch. Full exposure to the air should be given in fine weather. Plants that are treated in this way will be in excellent condition for planting in beds or boxes in May. In mild districts they may be put out at the middle of the month, but in cold localities the planting should be deferred until the end.

Some growers of Zonals like to keep the old plants through the winter, in order to save the housing of young stock. When they lift the plants from the beds in autumn they prune in both branches



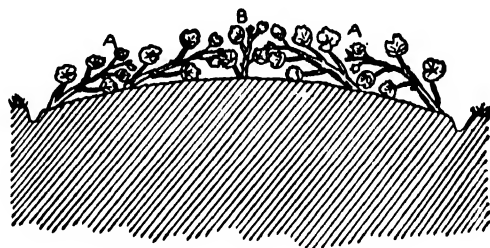
SHOWING HOW TO TREAT A PLANT
FOR WINTER FLOWERING

A shows the top pinched off ; B, B, side-shoots will grow afterwards as denoted by the dotted lines.

and roots, leaving no more than short stumps in both cases. When the plants are thus deprived of foliage they need no longer be exposed to light, but may be hung up in a cellar or attic. It cannot be said that the plan is always successful. Failure sometimes ensues through the plants rotting off, and they are most likely to do this when the place in which they are stored is damp. Decay can be staved off sometimes by cutting out the parts affected and dusting lime on; indeed, the plants should be examined periodically in order to see if they require such attention. Success turns upon the promptitude with which incipient decay is dealt. Provided that the plants can be kept sound, the plan is excellent, as fresh growth starts in spring, and nice plants soon develop.

Zonals will thrive in almost any kind of soil. They grow the most rapidly in rich soil, naturally, but there is such a thing as over-luxuriance. Very free growth means large, succulent plants, which do not flower very well, especially in a wet season. Shorter, harder plants are likely to bloom better, and they will certainly keep on longer in autumn, because the tough growth will resist the cold. The facts being thus, it is not wise to prepare the soil so liberally as would be the case if preparing for prize Sweet Peas. There is no occasion for trenching or manuring; the ground should be well dug—that is all. In poor soil the plants may be put in fifteen inches apart; in fertile ground, eighteen inches. Gardeners who have to deal with old, scraggy plants, which exhibit an inordinate amount of bare stem, adopt the plan of inserting them in a sloping position, so as to bring the tops nearer to the ground.

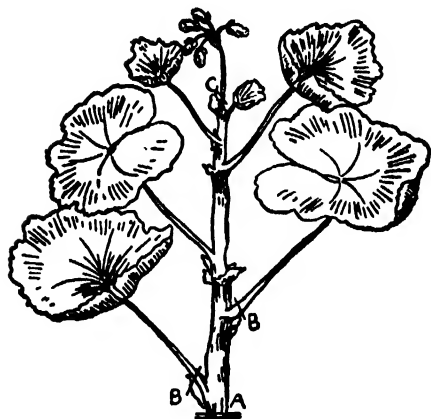
Zonals with beautiful foliage rarely have really fine blooms, but they can be associated with other plants which are attractive by



BEDDING-OUT ZONAL GERANIUMS

A, A, tall specimens planted in a slanting position;
B, a dwarf specimen planted upright.

reason of their flowers. A Golden Tricolor can be put among plants of *Lobelia fulgens*, which has dark foliage and long spikes of scarlet flowers. The leaf harmonies thus produced are very pleasing. Or they can be mixed with fibrous-rooted Begonias. Another plan is to use a mixture of silver-leaved Zonals and blue Violas. Pretty beds are thus formed, which retain their beauty for a great many weeks.



A CUTTING OF ZONAL GERANIUM

A shows the place where the stem must be cut off; B, B show the basal leaves that should also be cut off; and C shows the flower stem. This must be removed.

The cultural routine is very simple. It consists mainly in removing decaying bloom trusses promptly, and in keeping down weeds. The former can be done by pinching off the flower-stem low down with finger and thumb,

the latter by hoeing. It is desirable to give particular attention to the removal of decaying flowers in damp weather, as if the petals fall and cling to the moist leaves the foliage may become diseased.

Propagation is generally effected by taking cuttings in August. Short, non-flowering side-shoots are the most suitable material. If they can be taken off just under a joint, about four inches long, they will do admirably. The foliage should be removed from the lower part, leaving about two inches of clear stem. It is common to insert them in the open air, either in a bed or boxes. If the former, make the soil fine, level, and firm. If the latter, prepare a very sandy compost, and make it firm in the boxes. The cuttings should be inserted about four inches





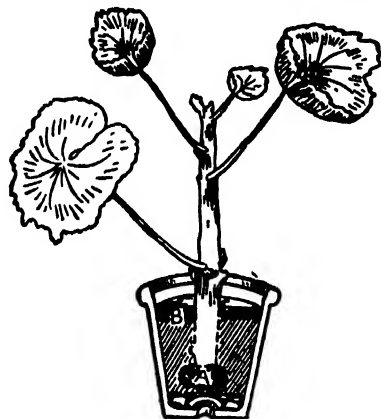
PURPLE BOUGAINVILLEA AND ROSES

By Beatrice Parsons

apart, and it is important that the base should be quite firm. Full exposure to the sun may be given, as the succulent shoots contain abundant stores of moisture, and will not flag and shrivel under exposure, the same as thin cuttings would do. The cuttings will steadily push roots, but they are not likely to be sufficiently rooted to make much top growth before winter, and this is all the better, so long as they are alive and healthy. The smaller they are the less room they will take up.

The cooler the surroundings are throughout the winter the better, provided neither frost nor damp is present. The air should be kept as dry as possible. Very little water will be required, and a supply should only be given when the soil becomes quite dry.

We will conclude our remarks on the Zonal Pelargonium as a flower-garden plant with a selection of varieties, which shall include varieties that are attractive by reason of their foliage, and others that are admired for their flowers.



ZONAL GERANIUM CUTTING INSERTED
IN FLOWER-POT

A shows sand at the base of the cutting ;
B shows sand on the surface of the
soil in the pot.

FLOWERING ZONALS

Beckwith's Pink (Mrs. Robert Hayes).—A well-known single variety, very free blooming and bright in colour.

Henry Jacoby.—A very old favourite, crimson, single, a profuse bloomer and of very rich colour. A variety of somewhat more erect habit can be got under the name of Henry Jacoby Improved.

John Gibbons.—Orange, very brilliant, single flowers.

Paul Crampel.—A magnificent single scarlet, of good habit and with immense flower trusses, which are borne profusely throughout

the season. This is certainly one of the finest of all the bedding Zonals.

Phyllis.—Rosy salmon, single flowers.

Swanley Single White.—The name describes this excellent variety.

In addition to the above singles we feel constrained to mention those favourites of former days, Vesuvius and West Brighton Gem, if only as a matter of sentiment, although we think that both are inferior to the modern Paul Crampel. Vesuvius was the great bedding scarlet of the old-time bedders, and West Brighton Gem was a sport from it with pale flower stalks and stems. They are still as bright as any, but are surpassed in size of truss by newer varieties. Surprise may also be mentioned; it is a salmon-coloured form of Vesuvius. Other good salmons are Mrs. Robert Cannell and Omphale, other pinks Cannell's Pink and Olive Carr.

Double Henry Jacoby.—This is a double variety of the old favourite crimson.

F. V. Raspail.—A popular scarlet double, free blooming.

Hermione.—One of the best of the double whites.

King of Denmark.—A good double salmon.

Ville de Poitiers.—Double scarlet.

We have selected the above varieties, both in the case of singles and doubles, because they are all of suitable habit for bedding; but any reader who has a favourite round-flowered single which he has been growing under glass may try it out of doors if he likes. Plants that have bloomed under glass in winter or spring may be planted out of doors in May if desired.

FOLIAGE ZONALS

Mr. Henry Cox.—A Golden Tricolor, with crimson zone; one of the best.

Masterpiece.—Golden Tricolor, very large, dark zone.

Mrs. Pollock.—Golden Tricolor, the old favourite.

Mrs. Miller.—Silver Tricolor, rich dark zone.

Dolly Varden.—Silver Tricolor, bright red zone.

Jubilee.—Golden Bronze, chestnut zone, salmon flowers.

Golden Harry Hieover.—Golden Bronze, a dwarf grower.

L'Enfer.—Very dark foliage and bright scarlet flowers, an effective variety.

Crystal Palace Gem.—Yellow leaves, bright flowers.

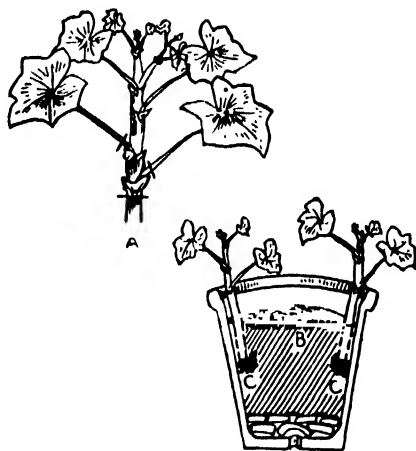
Flower of Spring.—Creamy foliage, dwarf, neat habit.

Other popular foliage Zonals are Peter Grieve, Distinction, White Distinction, Robert Fish, Boule de Neige, and Brilliantissimum.

IVY-LEAVED PELARGONIUMS

The Ivy-leaved "Geranium" has grown steadily in favour, both as a flower-garden and indoor plant, during recent years. It is somewhat singular to reflect that it has never come under the ban of hardy flower lovers in the same way that the Zonal has—singular, inasmuch as it possesses practically similar defects as well as similar good qualities. It is tender, it is just a little garish. Why should it not be *tabu*, equally with the Zonal? Perhaps there is no better explanation than that it never formed a part of the old ribbon border system, which aroused so much abhorrence.

In their hearts all hardy plant-men realise fully that the "Geranium" is a plant which can never drop out of our gardens. It is too persistent in blooming, too accommodating, too bright and varied

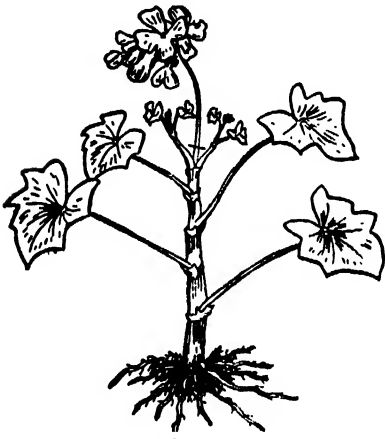


PROPAGATING IVY-LEAVED GERANIUMS

A shows how to prepare the cutting. The stem is severed below a joint, and the two lowest leaves are removed. B, sand on the surface of the soil. C, C, sand at the base of the cuttings.

in colour, ever to "go under" entirely. Many of them hanker after it themselves, and perhaps one reason for the rise in favour of the Ivy-leaved class is that it is accepted in the nature of a compromise. One can imagine a hardy plant lover responding to the raised eyebrows of a visitor of congenial tastes by hastily saying: "Ah! but these are the Ivy-leaved Geraniums, you know—quite different from the old Zonals."

Whatever the reason may be—whether as a substitute for Zonals or because of their own intrinsic merit—it is quite certain



IVY-LEAVED GERANIUM

Cutting well rooted and ready for potting singly in small pots.

that the Ivy-leaved section enjoys great favour. It is grown in the garden, in the conservatory, in vases, and in window-boxes. Its habit is loose and flowing. It droops flower-laden streamers from the summit of pillars, and from window ledges. Its flowers are large and abundant, and they come in a long succession throughout the summer. The leaves have not the brilliant markings of the handsome Zonals, but the Ivy shape is attractive. The plants look charming on banks, and as they possess much of the drought-resisting power of the Zonals, owing to their succulence, they will thrive in hot places. We think, however, that they may be given a somewhat better soil than the Zonals without fear of their making such exuberance of growth as to flower badly.

The Ivy-leaved Geraniums can be bought with single or double flowers, but the latter are much the more largely used. They are often planted in raised beds, or trained to stumps in flat beds, with dwarfer plants among them. In both cases their drooping, flower-laden stems show to advantage.

As the Ivy-leaved Geraniums are tender, like the Zonals, they



VANDA SUAVIS
By A. Fairfax Muckley

ought not to be planted before mid-May. If planted on the level, and in fertile soil, they may be put two feet apart. If trained on logs or stumps, another foot should be allowed. Beyond a little training of the shoots, hoeing to keep weeds under, and the removal of decaying flower trusses, the plants will need no attention. It is only in quite exceptional weather that they will require watering, when once fairly established.

The best method of propagation is to strike cuttings a few inches apart in boxes in August, the same as Zonals.

The following are beautiful varieties of Ivy-leaved Geraniums for bedding. Only doubles are named, as they are much better than the singles.

Achievement.—Salmon and pink.

Flambeau.—Scarlet.

Galilee.—Rosy pink.

Madame Crousse.—Silvery pink.

Robert Owen.—Deep rose.

Ryecroft Surprise.—Salmon pink.

Souvenir de Charles Turner.—Maroon and pink.

Madame Crousse and Souvenir de Charles Turner may be chosen if two only are required. They are free bloomers, have large, double flowers, and the colours are distinct and pleasing.

CALCEOLARIAS

We have said that one of the components of an old-time ribbon border was the yellow Calceolaria. Lovers of herbaceous Calceolarias, which they grow for decorating greenhouses and conservatories in early summer, will know that the bedding type belongs to a different class. It retains its stems after flowering, instead of dying down, and is therefore termed shrubby. It is, indeed, an evergreen, and although not quite hardy, is by no means a tender plant. The flowers are of similar form to the herbaceous, but

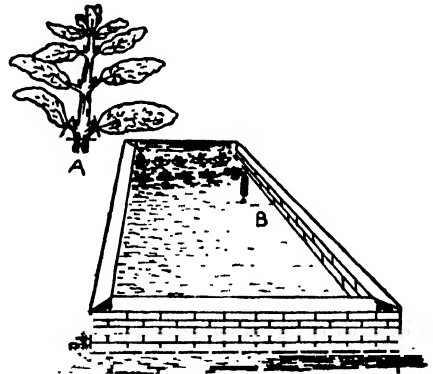
much smaller. There is no great range of colours among the shrubby garden Calceolarias, although they are not all yellow. There are white, orange, red, and violet species in addition to the yellow. Some of those grown for bedding are garden hybrids, varieties, or selections. Such are Bijou, Gaines's Yellow, Golden Gem, Sultan, and Golden Glory. Of these the last is by far the finest. It is a splendid plant with large trusses, and the colour is bright yellow. Most of these Calceolarias have come from the species *integrifolia* (*rugosa*).

We will not recommend the resurrection of ribbon borders in order to justify the inclusion of bedding Calceolarias in modern flower gardens. Clumps of them may be placed in selected positions in beds and borders, and they may be used in window-boxes also. They are so bright and cheerful that they merit attention for these purposes, and if used with discretion they do not overweight the garden.

The shrubby Calceolaria would be even more popular than it is but for the fact that it often succumbs to a disease which causes root decay, followed by general collapse. The trouble is worst in poor, dry soils, and when the plants have to struggle against hot, dry weather from the moment that they are planted out. On this account growers are learning to dissociate them from Zonals, as regards time of planting. There never was any real reason, of course, why the two plants should be linked together, because they are totally dissimilar in every way. It was the unfortunate ribbon border that brought them together, and got them associated in people's mind as inseparable companions, that must be treated exactly alike in every respect. Young Calceolarias are much more hardy than young Zonals, and consequently they may be planted out a month earlier, without much risk of injury from frost. They are certainly better out of doors than under glass after the end of April, because they keep hardier and sturdier. Moreover, when planted early they have a chance of getting well rooted before the hot weather comes on.

Calceolarias should have a better and moister soil than Zonals. The ground ought to be dug deeply, and thoroughly broken up, to assist it in holding moisture in dry weather. Regular hoeing should be practised, in order to keep the surface loose and crumbly, for this conserves moisture. The plants may be set a foot apart. They will soon begin to flower, and will retain their beauty all the summer. An occasional soaking with water or liquid manure will do good.

Although we recommend earlier planting than in the case of Zonals, we recommend later propagation. If the cuttings are struck in August, the plants are liable to make growth the same season, and that is not desirable. When the cuttings are inserted in October and kept cool throughout the winter, they will remain alive, but will not start growing until spring. The best wood for cuttings is short, sturdy, flowerless side-shoots, which may be taken off beneath a joint, deprived of the lower leaves, and inserted firmly in a frame. The soil ought to be of a very sandy nature, and should be moist. The cuttings must be inserted firmly just clear of each other, and given a light watering overhead. The frame



PROPAGATING BEDDING CALCEOLARIAS

A shows how to prepare the cutting. The stem and two basal leaves must be cut off as shown by the dark lines. B shows how to insert the cuttings in sandy soil in a low frame.



PINCHING BEDDING CALCEOLARIAS

A shows point of plant to be pinched off; B, B, B show side-shoots growing as a result.

should be kept quite close and shaded for the first week, but afterwards air may be given in fine weather. A thick mat or some other warm covering should be placed over the glass in very cold weather, but a slight frost will not hurt the cuttings.

They will commence to grow in spring, and the first young shoots may be stopped with finger and thumb in order to make the plants bushy. Thus treated they will be nice stuff for planting towards the end of April, and will bloom freely, while continued flowering may be maintained by removing the old trusses as they decay.

The following are good varieties of bedding *Calceolarias* :—

Bijou.—Dark red.

Gaines's Yellow.—One of the most popular for bedding.

Golden Gem.—Bright yellow, excellent in every way.

Golden Glory.—Yellow, large, and very free, a splendid sort, which will be largely grown when it is abundant enough to be cheap.

Prince of Orange.—Brownish orange.

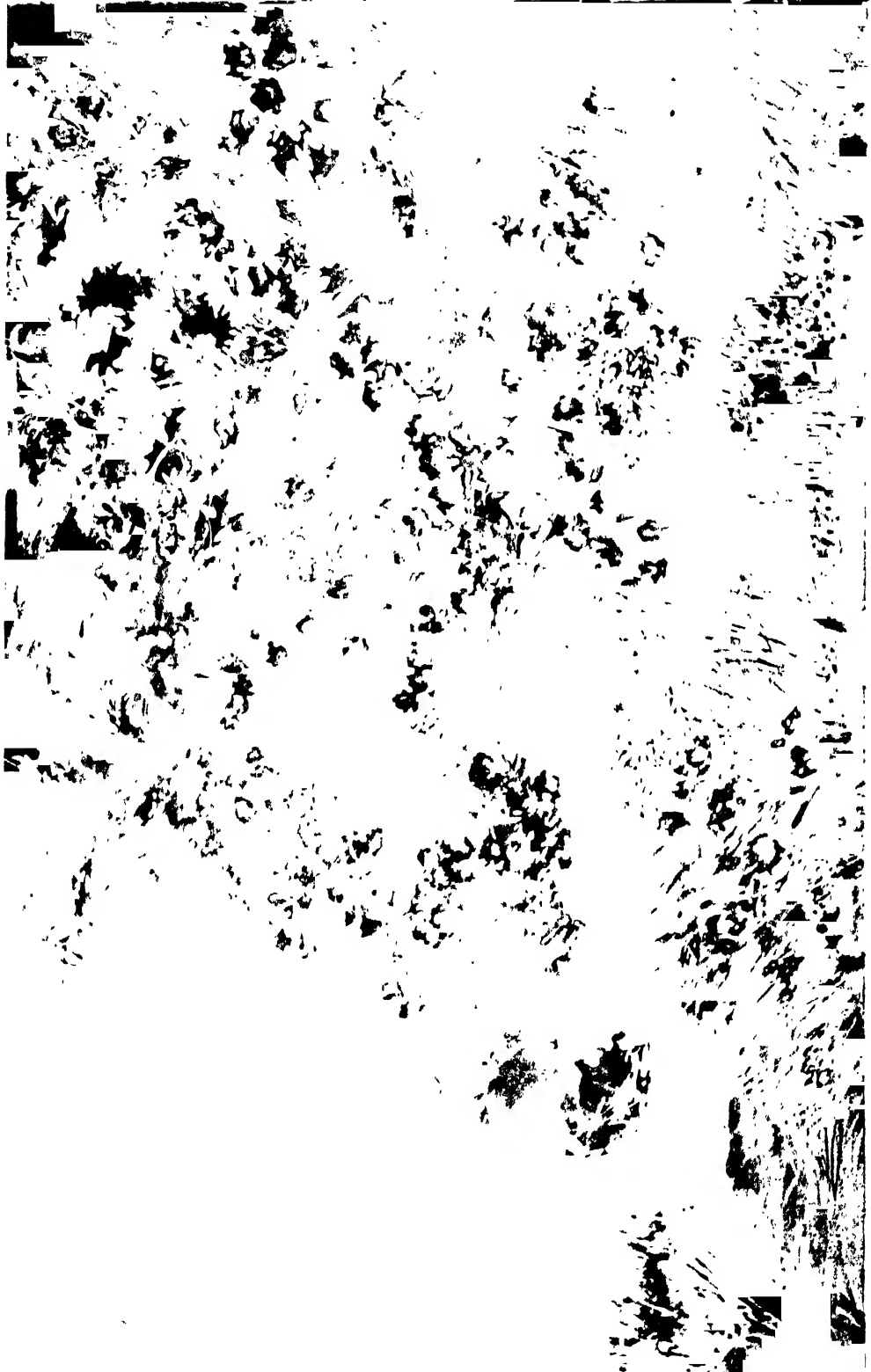
Sultan.—Purple.

In addition to the above a species named *amplexicaulis* is sometimes offered in the florists' catalogues. It is larger than the majority of the bedding *Calceolarias*, growing eighteen inches high. The colour is lemon yellow. *Burbidgei*, which is sometimes included in offers of summer bedding plants, is a large, loose-growing hybrid with yellow flowers of great size. It is a splendid *Calceolaria*, but is more suitable for winter flowering in a warm greenhouse than for summer bedding.

LOBELIAS

The blue *Lobelia* completes the "ribbon border" triumvirate. It is a lowly plant, and as a consequence it was used at the front of the border. Growing only a few inches high, of dense habit, and blooming so profusely as to cover itself with flowers, it fulfilled its allotted part admirably.

The ribbon border is no longer a feature of good flower gardens, but the *Lobelia*, like the "*Geranium*" and *Calceolaria*, is



ROSES IN THE WILD GARDEN

By Margaret Waterfield

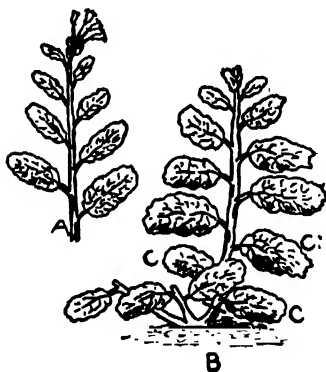
still used. Gardeners find it useful for putting round the edges of beds, and they employ it for window-boxes also.

Seedsman sold, and still sell, seed of bedding Lobelias, but flower gardeners who find a variety which they like generally propagate it by means of cuttings, as they can thus keep it quite true, both in habit and colour.

Mid-May is a good time for planting. The Lobelia will be in bloom then, probably, but that is no bar to planting. The plants form a mass of fibrous roots, and if the soil is moistened and pressed firmly round them they can be shifted at any time. They are best planted in tufts about two inches thick, the clumps about three inches apart; they will then fill out and make a continuous



A STOCK PLANT OF LOBELIA



CUTTINGS OF LOBELIA

A shows a bad cutting. It is weakly and shows flower-buds. B shows a strong cutting. It should be cut off at the dark line, and the leaves marked C, C, C also removed.

line of colour. They will not spread, however, in a poor, dry soil. The ground should be moist and fertile. Given good land, the plants will remain in bloom until autumn. At that season they may be cropped in, lifted, and potted, or packed closely together in boxes, with the object of wintering them on a greenhouse shelf.

They will not make much progress in early winter, but if the house is heated they will begin to grow before the close of winter, and the young shoots can be taken off as cuttings when a couple of inches long, and struck in sandy soil. As soon as they are fairly rooted their tops can be removed and struck in turn. Thus from a few old "stock" plants a nice lot of young ones is quickly provided.

The following are good varieties of dwarf Lobelia:—

Swanley Blue.—One of the best blues.

Newport's Model.—Blue with white eye.

Miss Hope.—White.

Kathleen Mallard.—Double blue.

In these days of herbaceous plants the tall perennial Lobelias are largely used for beds and borders, but we can hardly include them in a chapter on tender bedders, as they are hardy. The species *cardinalis* and *fulgens* (scarlet flowers), and *syphilitica* (blue), and the numerous varieties of them, are very popular.

AGERATUMS

These pretty, dwarf plants are old favourites for bedding, and are still used a good deal. They are generally classed as half-hardy annuals, and as such are raised from seed every year; but varieties of special merit may be perpetuated by means of cuttings, so long as they are not allowed to ripen seeds.



CUTTINGS OF AGERATUM

A shows a good cutting prepared for insertion; B, coarse soil and drainage in the pot; C, fine soil and sand.

If the plants have to be raised from seed in the first place, owing to the absence of plants from which to take cuttings, the seed may be sown in shallow boxes of light soil in spring, and the seedlings pricked off a few inches apart in other boxes when they begin to get crowded. This will result in dwarf, sturdy plants, which will soon show bloom, and which will be quite ready for planting out by mid-May. They enjoy a well-dug, moist, fertile soil, and in such a medium will remain in bloom during the whole of the summer.

To perpetuate a variety by means of cuttings, pinch off the flower heads as they fade, and insert growing shoots in sandy soil, preferably over bottom heat, but certainly in a heated house.

They may have cool treatment as soon as they are rooted, as nothing is gained by pushing them on through the winter. If preferred, old stock plants may be kept in a cool house during the winter, and cuttings from them struck on a hotbed or in a propagator in spring.

The following are good varieties:—

Blue Perfection.

Compactum nanum album.—White.

Imperial Dwarf.—Blue.

ALTERNANTHERAS

When carpet bedding was in vogue the *Alternantheras* were very popular—indeed, they were practically indispensable to those who indulged in garden mosaics, owing to their neat, dwarf growth and to the beautiful colouring of their leaves. And carpet bedding was very much in vogue in the latter half of the nineteenth century. One read of carpet beds in many important gardens, and saw them in the public parks. They have died out of the former entirely, but one still comes upon isolated examples in the smaller provincial parks.

In the heyday of its popularity carpet bedding was never practised by the majority of amateur gardeners, and there were good practical reasons for this. In the first place, there was the preparation of the designs—a tedious and laborious business, of very little value as mental training. One could imagine a student of geometrical drawing finding interest in such a task, but no one else. Then there was the preparation of the requisite plants, and that was no light task, since in an elaborate design several kinds of a particular character had to be chosen, mostly such as required glass accommodation. Then there was the slow process of planting, which had to be done with as much accuracy as the laying down of a tiled floor. Finally, there was the periodical cropping

and trimming, without which the design would have speedily been lost through the intermingling of the various plants. It will be clear that, in proportion to its area, a carpet bed was one of the most expensive forms of gardening.

With respect to its effect, one cannot deny that a well-designed, well-kept bed possessed a certain interest, and that it was at least calculated to stimulate curiosity; but it was entirely unnatural, and on that account alone it is satisfactory to know that it is moribund.

With the decline of carpet bedding there was a decline in the cultivation of such plants as the *Alternantheras*, which are of little use in mixed borders, or for ordinary bedding. The method of culture was to pot stock plants in autumn the same as *Lobelias*, and keep them in a warm house throughout the winter, then to take cuttings and insert them in sandy soil over bottom heat, potting singly in due course, and planting out in early summer. The two species which, with their varieties, were most used were *amabilis* and *paronychioides*. A popular variety of the former was *amoena*, and two varieties of the other that were largely employed were *major* and *aurea*.

IRESINES

These plants share with *Alternantheras* a decline due to the fall of carpet bedding. Larger in growth (although dwarf) and less tender than the latter, they are still worthy of attention where coloured foliage is required. They are not very particular as to soil, or susceptible to variable weather conditions. They may be raised from cuttings inserted in sandy soil, preferably over bottom heat, in autumn or spring, and planted towards the end of May. *Herbstii* (maroon) and *Lindenii* (blood-red) are the two species grown, and there are several varieties of them, differing somewhat in the colour of the leaves.



DENDROBIUM NOBILE
By A. Fairfax Muckley

GAZANIAS

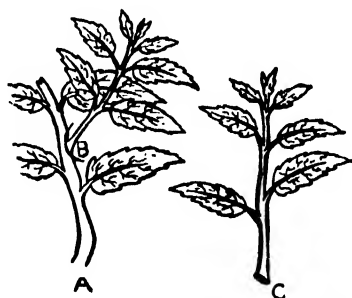
Gazania splendens is a brilliant orange-coloured flower, growing from a foot to eighteen inches high, and is sometimes used for bedding. There is a yellow variety of it, and one with variegated leaves. The plants love sunshine, and do best in loamy soil. They can be propagated by taking the side-shoots as cuttings and inserting them in sandy soil in a frame, which should be kept close.

LANTANAS

These charming plants are very useful to bedders, and any amateur can grow them with ease. In foliage they resemble *Heliotrope*, and the flowers are borne in close heads. The colours are brilliant and varied. Inasmuch as the plants bloom freely and continuously, and will do in ordinary soil, they are undeniably useful. They have the defect of a straggly habit of growth, but this can be corrected by pinching in the early stages.

The Lantanas are useful for window-boxes, tubs, and large vases, as well as for beds.

They are propagated by taking cuttings of flowerless side growths late in summer, and inserting them in sandy soil in a warm frame kept close, or under a handlight. The resulting plants can be potted separately in March, and stopped when the shoots are about four inches long. Some prefer to preserve the old plants, shorten them and pot them in autumn, then prune them hard in spring like *Fuchsias*, and give them heat to start the back buds.



CUTTINGS OF LANTANA

A shows stem of old plant; B, a side-shoot suitable for a cutting; C shows the latter severed with a heel attached.

The following are good varieties :—

Chelsea Gem.—Crimson and pale yellow.

Delicata.—Pink with white eye.

Drap d'or.—Orange.

La Neige.—White.

Magenta King.—Purplish scarlet.

Ne Plus Ultra.—Rose.

Any of the above may be chosen of which the colour is liked.

VERBENAS

We have already referred to the Verbena as a plant which may be raised from seed early in the year and treated as an Annual. Probably most growers deal with it in this way at the present time. The day of the Verbena as a florist's flower, to be grown through the winter and propagated by cuttings from year to year, is past. The florists of the mid-Victorian epoch esteemed it highly, but it gradually declined in favour with amateurs.

It must be acknowledged, however, that Verbenas make charming beds. When they are once established they grow rapidly, and flower profusely over a long period. The colours are bright, and the flowers are scented. Having these merits, Verbenas are certain of a considerable measure of popularity, especially when it is realised how easily they are grown from seed, and that one or two of the best of the modern varieties come quite true from seed.

The seed may be sown in boxes of light, sandy soil, kept moist, in January, the seedlings pricked off three inches apart when they begin to get crowded, and planted out from the boxes about mid-May. If the soil is rich they should be placed eighteen inches apart, and the growths pegged down as they extend. By adopting this plan the soil is quickly covered. Mixed seed of a good strain will give a nice selection of colours, but there are a few particularly

desirable sorts which ought to be procured and grown separately. Among them are:—

Ellen Willmott.—Pink with white eye, a lovely Verbena, suitable either for pot or garden culture.

Venosa.—Mauve, an old species of very distinct colour, much in demand for borders.

Warley.—Brilliant red, of upright habit, better suited for pot than for garden culture.

Lustrous.—Scarlet with white eye, a vigorous grower and excellent for beds.

Lovely Blue.—Pale blue, very sweet, a free grower.

Boule de Neige.—White, very sweet, a good bedder.

In the case of any variety of which seed is not procurable, cuttings may be taken, and struck in sandy soil in a close case or frame. Or old plants may be wintered and cuttings struck in spring.

TROPAEOLUMS

The annual Tropaeolums of the half-hardy class, mostly varieties of Lobbianum, are not very largely planted in beds, owing to the fact that there is such a magnificent series of hardy varieties available. These are generally offered by seedsmen under the popular name of Nasturtiums, and we have referred to them under Hardy Annuals. The half-hardy trailers are sometimes trained over stumps in beds or borders, but more often on porches and arches, or planted to droop from window-boxes.

TUBEROUS BEGONIAS

These splendid flowers have been dealt with in a previous section. In addition to their value for beds, they are in great demand for the decoration of greenhouses and conservatories. As bedders they have had a long drawn battle for supremacy with

Zonal "Geraniums," and have emerged victorious. We cannot but think that they are really superior to the old favourite, except in poor, dry soil, or in a very dry season. There can be no doubt of their superiority in rich, moist soils. The flowers are larger and the colours softer. They have the pull, too, in a wet season. The flowers of Zonals are not constructed to stand wet, and in a damp, cold season they have a very bedraggled appearance, while the plants run to leaf.

We warmly urge the claims of Tuberous Begonias as bedding plants. We have used them extensively, and with conspicuous success. Nothing in the way of dwarf plants can well be more beautiful than well-grown Begonias. The foliage is handsome, although it does not possess the rich and varied markings of the finest Zonals. The flowers are glorious. In a good strain one gets single blooms as large as saucers, and double ones that rival Hollyhocks and Camellias. The form is very beautiful, while the colours are as lovely as they are varied. Pure, snow-white, lemon and deep yellow, blush, soft pink and dainty rose, salmon, orange and brilliant scarlet—all these are present.

Begonias do not come into bloom quite so quickly as Zonals, because they take longer to get established; but there is no reason why they should be half the summer struggling along towards flowering, as they often are. More care in developing the plants, and more thoroughness in preparing the soil, remedy this common trouble. Early flowering is desirable, because it need not militate in any way against late blooming. If the plants are healthy and growing they will keep on flowering throughout the summer, and as long in autumn as the frost will keep away.

Amateurs who want to have a thoroughly successful bed of Tuberous Begonias ought to procure tubers in early March, bury them in a box of moist cocoa-nut fibre refuse or leaf-mould, and put them in a warm frame or house. The heat and moisture will start them into growth quickly. They may be allowed to remain



ODONTOGLOSSUM CRISPUM

in the boxes as the growth extends, because potting them entails time, soil, and pots, without any very striking superiority in vigour. If the material is kept moist, roots will push into it freely. Plants in frames are pretty certain to keep dwarf and sturdy, but they might get drawn in a house unless care was taken to keep them near the glass. This point is of importance, as long, scraggy plants are very poor material for beds—or anything else either, for the matter of that. Air should be given in fine weather.

Between, say, mid-March and the end of May the plants will have plenty of time to get strong. Meantime, as soon as the spring plants are cleared away the soil ought to be prepared. It should be dug deeply—in fact, the subsoil ought to be broken up, so that a depth of a foot and a half is secured. Well decayed yard manure, leaf-mould, and wood ashes are all suitable material to add. If the soil is naturally retentive and moist—clay, for instance—it will be all the better for the plants; but light soil can be made to give good results with liberal treatment.

If the plants are six to eight inches high at the end of May, with a good mat of fibres, they will be in perfect condition for planting. The roots should not be shaken clear of the fibre when they are removed from the box; on the contrary, as much as clings to them must be allowed to remain. We say this, not because we believe that the fibre will be particularly nourishing to the plants when they are put in the beds, but because we regard it as important to avoid any risk of the roots getting dry. The plants may be put eighteen inches apart in heavy, rich, moist soil, but somewhat closer in lighter, drier ground. They may be settled in with a good watering, and if the weather should keep dry after planting it will be well to give further waterings until they have got nicely into growth. The grower must pay particular attention to the plants for the first two or three weeks, as it is very desirable to start them off quickly and keep them moving. Regular hoeing will suffice to maintain steady progress in retentive

soil, but in light ground it may be advisable to give a thick mulch of cocoa-nut fibre refuse after thoroughly soaking the soil. If the plants can be kept steadily at work until the foliage meets on the bed, all fear of failure may be considered at an end. Flowers will come, and will keep on coming—in fact, there will be a steady stream of lovely blossoms. But the culminating display will be in the cool days of September, and (if frost permits) early October. The plants will be laden with brilliant blossoms, and the bed will be one of the sights of the garden. Fading flowers should be picked off regularly throughout the season.

The problem of wintering the plants is a much simpler one than in the case of Geraniums, as they will lose their leaves and stems by a process of natural decay. The tubers can be lifted, dried, and stored in any dry, frost-proof place until spring.

We do not think that it is necessary to go to the expense of buying named varieties of Begonias for beds; mixed tubers will do; but, if desired, tubers can be bought in separate, distinct colours, such as white, cream, blush, pink, rose, yellow, salmon, buff, scarlet, crimson, and Picotee edged.

CANNAS

The Canna is a valuable bedding plant, and thrives under practically the same treatment as Dahlias. The old-time Cannas were tall, vigorous plants, and were grown at least as much for their leaves as their flowers, being used in what was called sub-tropical gardening. The modern varieties are in the main much dwarfer, and with a reduction of leaf and stem growth there have come larger heads of bloom, together with increased diversity of colour.

The newer dwarf Cannas, with their large spikes of brilliant flowers, unquestionably make very fine beds. The foliage is broad and handsome. In some varieties it is plain green, in others brown,

crimson, or chocolate. The colours include yellow, orange, rose, crimson, and scarlet, while many varieties have spotted flowers.

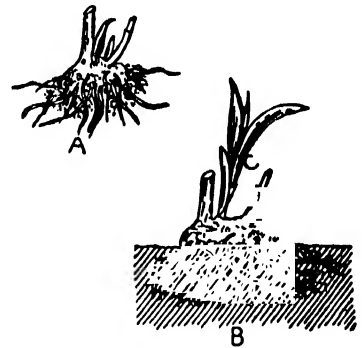
There are two great divisions of modern Cannas, namely, the Gladiolus-flowered and the Orchid-flowered. The former is the more important, as it embraces a larger number of beautiful varieties, with long spikes of large flowers; but there are some very fine sorts in the other class.

Both sections need the same cultural treatment, and the main item is the provision of deep, rich soil. Like the Dahlia and the tuberous Begonia, the Canna loves moisture and abundance of good fare. The soil should be prepared as thoroughly as for Begonias.

The amateur may begin by buying dormant roots or young growing plants in spring. The root-stocks start into growth readily in a warm house or frame. They may be potted, or plunged in moist cocoanut fibre refuse or leaf-mould similarly to Begonias; potting is practised as a rule. Any piece of root-stock with some root fibres and a growing crown will make a plant if potted. Growth will start from latent buds on the crown. With water as required, and moderate warmth, the plants will progress rapidly, and they may be planted two feet apart in the beds in May. They should be watered until they are growing freely; afterwards they will look after themselves in heavy soil, but in light soil occasional soakings of water, or liquid manure, may be required throughout the summer.

The growth will die away in autumn, when the roots may be lifted and stored for the winter. They should be kept in a frost-proof place, and free from drip.

Cannas may be raised from seed if required. The common name of "Indian Shot," which is applied to the Canna, is derived



CANNA—ROOT-STOCK AND GROWING CROWN

A, root-stock; B, root-stock in soil; C, growing crown.

from the hardness of the seed, which ought to be soaked in very hot water for half-an-hour before sowing, or germination may be very slow. The pots should be stood on a hot-bed or in a propagator. If the seeds are sown at midwinter, and the plants are potted and repotted as required, they will make good stuff by autumn, but they may not be ready for bedding the first year. They may be kept in pots for conservatory or greenhouse decoration—a purpose which they will serve admirably.

It is hardly necessary to go to the expense of named varieties for beds, but here are the names of half-a-dozen good *Gladiolus*-flowered varieties :—



ECHEVERIAS

A, old plant ; B, offset which must be removed for propagating purposes at the dark curved line.

Ami J. Chrétien.—Chestnut.

Aurore.—Red.

Comte de Bouchaud.—Yellow, red spots.

Königin Charlotte.—Crimson, yellow edge.

Kaiser Wilhelm II.—Scarlet.

Ménélik.—Crimson.

ECHEVERIAS (COTYLEDONS)

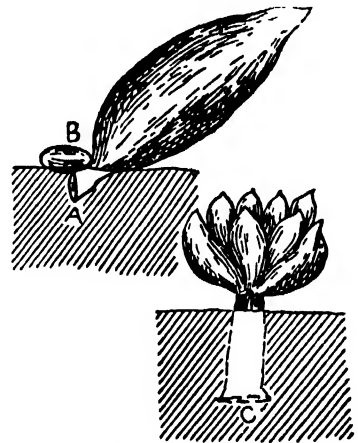
In the old carpet bedding days *Echeverias* (now called *Cotyledons* by botanists) were more important plants than they are now. They are very succulent, growing in the form of rosettes of thick, fleshy leaves, from which spring the long, slender flower-stems. The carpet bedders did not grow *Echeverias* for the flowers, but for the foliage. They used the plants in cones, shields, circles, and diamonds. A small mound would be raised, studded all over with *Echeverias* planted closely together, and surmounted by a graceful foliage plant, such as a *Dracaena*. The varieties *metallica* and *secunda glauca* were the most popular. The former is perhaps the best of all. It is a variety of *Gibbiflora*—itself well worthy of

cultivation as a pot plant for the greenhouse, as it produces brilliant red and yellow flowers in July.

The *Echeverias* thrive in ordinary garden soil, but they do not care for heavy, moist ground. They are readily increased by offsets or by leaves, put in pots in a warm house in autumn.

FUCHSIAS

The hardier of the *Fuchsias*, such as *Corallina* and *Riccartoni*, are sometimes introduced into beds and flower borders, but one can hardly speak of them as bedding plants in the ordinary sense. When they are used in the garden they are generally planted permanently, and cut to the ground every autumn. In cold districts it is well to cover the root-stocks with litter in November. The garden *Fuchsias* are particularly graceful plants.



ECHEVERIAS—PROPAGATION

A, leaf inserted in sandy soil; B, a stone placed on the heel of the leaf to keep it firm; C, offset inserted in sandy soil.

HELIOTROPE

There is no reason why lovers of the fragrant "Cherry Pie" should not introduce it into their flower-beds, as well as grow it for adorning and perfuming the conservatory. The colours are not varied, it is true, but there are several shades of blue, and one or two in which rosy tints prevail. There are also white, or nearly white varieties. The richer hues, such as purplish blue and violet, will be found the most effective in beds.

Heliotropes are tender plants, and ought not to be put into the garden before the end of May. While they are not really particular as to soil, they do not grow to perfection in a close, retentive medium. On this account the soil ought to be thoroughly

broken up, and if it is of a stiff, holding character it will be well to lighten and disintegrate it with burnt refuse, leaf-mould, road sweepings, and thoroughly decayed manure. The plants will require pegging down as they grow, like Verbenas, and to allow room for this they should be planted eighteen inches apart.

Propagation is generally effected by means of cuttings, which should consist of about four inches of the young flowerless shoots, taken off in September, and struck in sandy soil on a hotbed or

in a propagator. When the cuttings are rooted they should be stood on a shelf in a heated house. They will not make much growth through the winter, but will go ahead in spring, and more cuttings can then be taken from the young plants. When rooted they can be put singly in small pots, and grown therein until the time comes for planting them in the garden.

The following are beautiful varieties of Heliotrope:—

Adele. — Deep violet blue, green leaves.

Frau Bertha Schafer.—Heliotrope colour.

Lord Roberts.—Violet.

Miss Nightingale.—Deep blue, dark leaves.

Swanley Giant.—Very large rosy heads.

White Lady.—Very pale flowers, green leaves.



HELIOTROPE CUTTINGS

A, main stem of a plant; B, a side-shoot suitable for a cutting; C, the cutting prepared for insertion.

MIMULUSES (MONKEY FLOWERS)

To mention that the well-known Musk is a Mimulus is to win sympathy for the plant immediately. The bedding Mimuluses are not fragrant, but they have large, brilliantly coloured flowers, in

most cases spotted. They bloom profusely, and remain in beauty a long time.

The *Mimuluses* have a special value in the fact that they will thrive in shady places. They love coolness and moisture. If seed is sown on a gentle hotbed, or in a warm greenhouse, in late winter, the plants ought to be ready for the beds by the end of May. All seedsmen sell good strains of spotted *Mimuluses*.

PETUNIAS

These pretty flowers were referred to in a previous section. They are charming for beds, and they have an advantage over many plants in that they will thrive in a comparatively poor, dry soil. This should secure for them the special attention of flower gardeners who have to secure effects on thin, chalky, or gravelly soils. So long as strong plants are prepared, and watered until they are established, good results may be expected.

The London park gardeners make considerable use of *Petunias*, and one sometimes sees them even in the Embankment Gardens, where the air is far from pure. If they will thrive here—and they certainly do—no country amateur ought to be afraid of trying them.

The simplest way of raising a supply of *Petunias* is to sow seed in late winter, and set the box on a hotbed, or on a shelf in a warm house. If the seedlings are thinned as required, and pricked off a few inches apart in due course, they will make nice stuff for planting out by the end of May. They should be kept sturdy by growing them near the glass and giving abundance of air in favourable weather.

SALVIAS

Salvias are brilliant flowers, and are largely used for pot culture, especially for winter blooming. We do not often see them used

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SALVIAS

Salvias are brilliant flowers, and are largely used for pot culture, especially for winter blooming. We do not often see them used

as bedding plants in England, but Irish gardeners employ them most effectively. In the moist, mild climate of many parts of the Emerald Isle they do splendidly in the open air, and make glorious breaks of colour. *Patens*, with its flowers of brilliant blue, is particularly fine as a bedding plant. There is a white variety of it. The well-known scarlet *Salvia splendens*, is almost exclusively used as a winter bloomer under glass. If grown out of doors, *Salvia patens* should have a deep, friable, moist soil.



CATTLEYA LABIATA
By A. Fairfax Muckley

FLOWERS FOR SUBURBAN GARDENS

MANY of the flowers which have been dealt with in previous chapters are suitable for suburban gardens; nevertheless, in many respects gardening near towns is conducted under conditions which differ somewhat from those existing in the country, and we deem it well to give special consideration to it. In so doing, we will not only deal with the various plants under the particular conditions which prevail in the suburbs, but devote a little attention to the laying out and equipment of small gardens.

All students of sociology have observed the great outburst of revolt against the sordid and cramping influences of town life. There is a simultaneous inflow and outflow. Labourers are leaving the country for the towns, partly as a result of the higher wages procurable in the latter, partly because they have become unsettled by a system of elementary education which has taught them just sufficient to make them discontented with the simple round of rural life, but not enough to give them well-balanced minds.

These men have brought their love of gardening with them, and endeavoured to practise it. They have not always succeeded, owing to the inability to get suitable ground, but in many cases they have done well enough to set an example to others, who have imitated them. We know of many cases in which skilful cottage gardeners from the country have exercised a considerable influence upon the townsmen among whom circumstances have placed them. Some of these were not in the lowest scale of labour. They were artisans, small tradesmen, and clerks. Practising gardening, and learning to love it, they were filled with a strong desire to get more ground, and as a result went "further out."

When a townsman gets the gardening fever, the distance to which he transfers himself from the deadly town centre is regulated by his circumstances. If he has an independence, however small, he goes into the country. This causes an interchange which maintains a steady occupancy of cottages. In view of what is called the "rural exodus," it might be expected that half the cottages up and down the countryside are empty. The truth is that it is difficult to get one. But the townsman does not always get as far as the country proper, owing to the exigencies of his daily occupation. He may have to spend five and a half days a week in a town, earning a salary that does not permit of a long railway journey. Hence he lives in the town suburbs, or in a smaller town not far away that gives, horticulturally speaking, suburban conditions.

We may expect the garden movement to go on. It will break out in Suburban Garden Associations and in Garden Cities. It will mean in either case gardening by men who are not trained horticulturists, and who can only give two or three hours of the day to their hobby, except on Saturdays, when they will have the afternoon as well as the evening. Further, it will mean gardening among houses. The farther we get from the town centre, the larger we may expect to find the garden, and the purer we may expect the air to be; but the conditions of labour will remain the same—it will be unskilled, and it will be restricted to certain leisure hours.

The really considerable degree of success which has been achieved by amateur gardeners under such conditions is a sufficient proof of the ready way in which nature responds to any fairly well directed effort to grow plants, and the obviously beneficial effects of the work, not only in beautifying one particular home, but in improving the health, spirits, and character of the householder, are in the highest degree encouraging. Two things are quite clear: the first, that it is not necessary for a man to undergo a training

in gardening, or to have a great deal of spare time, in order to make a small garden attractive; the second, that the improvement of ground has an admirable moral effect.

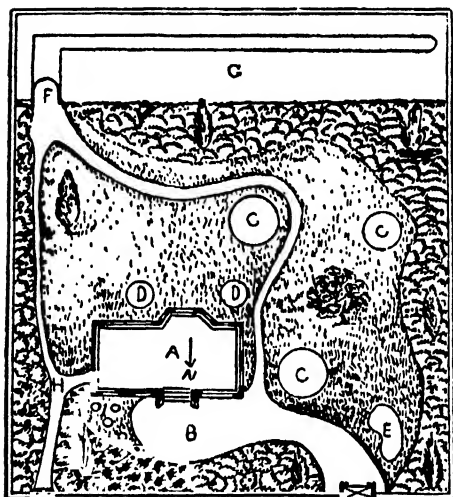
The most common cause of failure in suburban gardening is the cramming in of many kinds of plants, irrespective of their habit and their suitability for the conditions under which they have to grow. Suburban gardens might be divided into three classes: those that do not exceed three to six square rods in area and are worked entirely by the owner; those which run to ten or twelve rods and are worked by the owner with the help of a jobbing gardener; and those which extend to half an acre and are mostly controlled by hired labour. The first of these three classes is perhaps the largest. Thousands of people have such gardens, and they sometimes make the mistake of trying to grow flowers, fruit, and vegetables together.

In view of the fact that constant supplies of vegetables are brought to the doors of suburbanists daily, we do not think that it is wise to give up the precious space of a very small suburban garden to them. The most that we should do would be to grow a row or two of Peas and Beans, because it is of particular importance to have these quite fresh and unmixed, and the green-grocer's supplies do not always fulfil these conditions. We should certainly not attempt to grow Potatoes, particularly if our soil was heavy, because we should expect to be able to buy them of better flavour, and quite as cheaply as we could grow them ourselves. We should not grow Beetroot, Carrots, and Parsnips, because these roots can be bought quite fresh. And least of all should we grow any kind of greens, because the sulphuretted hydrogen that gathers about them in wet weather is very disagreeable. Celery is an admitted delicacy, but the objection to it from the suburban gardener's point of view is that it takes up more room and entails more labour than is justified by results. And good, fresh Celery is always procurable in its season.

We yield to none in our belief in the value of vegetables, and would have them grown wherever the conditions are favourable; but we have to take a common-sense view of this as of other matters, and we are firmly of opinion that a small suburban wall-enclosed garden is not the place for general vegetables. Of course, the utilisation of waste ground in our towns for allot-

ments is a different matter. Vegetables of various kinds should be grown on them.

So far as fruit is concerned, it is equally open to doubt whether it is worth the while of suburbanists with very small gardens to attempt it. The most that should be done is to try a few cordon trees on the party fence. Larger trees, grown in the open, will take up more room than can be spared, and birds are likely to attack the buds.



A LARGE SUBURBAN GARDEN

A, dwelling-house; B, main entrance; C, C, C, flower-beds; D, D, and E, also flower-beds; F, arch for climbers; G, kitchen and fruit garden (if any); H, tradesmen's entrance; I, standard Roses; N, north.

Planning.—It will be gathered that we believe in restricting small suburban gardens to ornamental plants, with which may be included grass. Vegetables and fruit may, however, be

planted in larger ones, especially if they are big enough to be divided into two or more sections. There is room for the display of a considerable amount of taste and ingenuity in laying out small plots. The beginner should not go along the line of least resistance, which generally leads to a border round the sides, a grass plot in the middle, and nothing more. We like the border, and we like the grass plot, but we think that in most cases a little more can be done. Perhaps the garden is a rectangle, a little longer than it is broad, at the back of a row of terrace houses, with a low



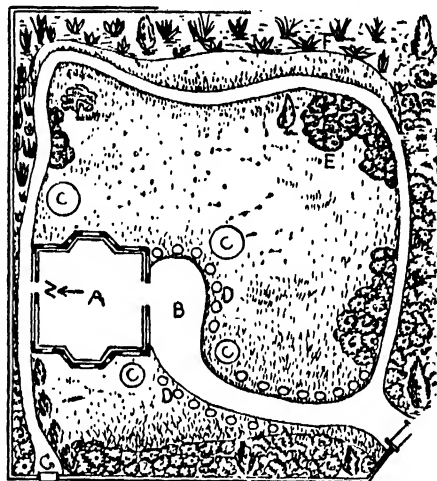
MASDEVALLIA HARRYANA

By A. Fairfax Muckley

party wall or fence on each side. We may first of all endeavour to secure greater height for our creeping plants, and greater privacy for ourselves, by attaching a piece of painted or creosoted wooden trellis, about two feet high, to the wall. A foot-deep band of galvanised wire attached to the trellis, but not so securely as to be quite firm, will serve to discourage the invasion of cats. Trellis and wire together will cost very little. Then, in spite of the smallness of the garden, we may plant a few trees. It is to be feared that we cannot soar to the finest species, and must be content with Lombardy Poplars, except in one or two selected positions, of which more later. The Poplars may be decapitated about eight feet above the ground, and they will then break out from the lower part, so that, planted six feet apart, they will meet and give still greater privacy.

A walk at one side only of the garden will suffice, and it will, of course, follow the line of the border. If six inches of brickbats and clinkers are first rammed in, and then surfaced with two inches of gravel, the walk will do admirably. It should be a little higher at the centre than the sides, so that rain will run off. The border ought to be four feet wide, and the path three feet; then the width can be completed with a grass plot and another four-foot border.

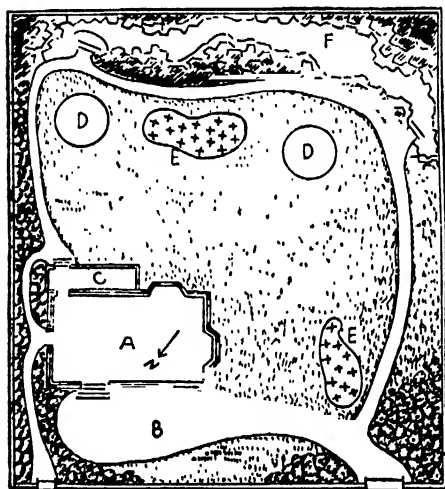
We will not carry borders, paths, and grass plots uninterruptedly to the other end of the garden, but stop them a few feet away, in order to form a garden "cosy corner." This shall be screened by a trellis five or six feet high, with a narrow border at its foot in which to put plants for covering the trellis. The latter shall not



ANOTHER SUBURBAN GARDEN

A, dwelling-house; B, main entrance; C, C, C, C, flower-beds; D, standard Roses; E, clumps of shrubs; F, herbaceous borders; G, tradesmen's entrance.

go completely across the garden, for that would deprive us of an entrance to the "cosy corner," but there shall be an opening the width of the path, and here an arch shall be set. In one angle of the enclosure thus formed we will set a summer-house, with shrubs and one or two selected trees, such as Almonds or Laburnums, on each side of it. This will develop into a shady and secluded spot, delightful on the evenings of hot days—a place to read, write, and muse in after a trying day in a stuffy office, and



A THIRD SUBURBAN GARDEN

A, dwelling-house; B, main entrance; C, conservatory; D, D, flower-beds; E, E, Rose beds; F, rockeries; N, north.

after the plants have been looked after. It adds greatly to the attractions of a suburban home to have some such quiet place as this. A few seeds of Mignonette and Night-scented Stock should be sprinkled in patches near the summer-house, as the perfume of these deliciously scented flowers will be highly agreeable on summer days and nights.

If there is to be a greenhouse, it may stand at the opposite side of the enclosure to the summer-house. In the absence of a greenhouse, perhaps a small rockery can be formed.

The occupier of a suburban house often puts his greenhouse in the angle of the abutment (formed of kitchen, outdoor offices, and bedroom above) which forms such a common feature of rows of terrace houses. His principal object in doing this is no doubt to be able to enter it direct from the dwelling. There is some advantage in this. It is admittedly pleasant to be able to step out of a dwelling-room into a well-furnished greenhouse or conservatory. But the position is not generally a good one for plants. The house is usually shaded for the greater part of the day; and it catches falls of snow from the roof in winter, often with disastrous results to the glass.

The form of greenhouse in such a position will be a lean-to, but we prefer a span-roof in the open. If the ends run north and south, the sides will get the sun for the greater part of the day, and although the heat may be too great at times, necessitating shading, the net effect will be good.

By the inclusion of a greenhouse in the suburban garden, the amateur will be able to continue his horticultural operations for a much longer period than if he had only outdoor plants—in fact, he will be able to keep going all the year round, growing some of the beautiful plants described in our chapter on Greenhouses.

In the absence of a greenhouse, the rockery will be an interesting feature. A mound of soil can be formed, and studded with large stones, which can be got from a local builder or florist. Rock plants are delightful little gems, and so are the smaller bulbs, such as Irises, Glory of the Snow, Dog's Tooth Violets, Snowdrops, American Cowslips, hardy Cyclamens, Crocuses, and others named in our Bulb chapter.

If a Rose is particularly wanted for the arch, we recommend the glossy-leaved Dorothy Perkins. Whether it succeeds or not will depend on the purity of the air. If there are factories near, it may fail. No Roses care for impure air, and Dorothy Perkins is no exception, but it is more likely to succeed than most varieties. There is, however, a charming arch plant that nearly always succeeds in suburban gardens, and it is the small, white-flowered Clematis montana. Care should be taken to deepen the soil thoroughly, and to manure it well, for whatever climber is planted. A thorough drenching of water or liquid manure twice a week in hot weather will be a great help to the plant.

As regards shrubs for the summer-house corner, we advise the amateur to be content with some everyday, useful thing, such as the Aucuba. We are aware that it is a common shrub, and we can well understand country amateurs with large gardens planting

something more interesting; but the particular circumstances have to be considered. Aucubas do not object to conditions that would be unfavourable to most shrubs.

Grass Plots.—It will have been noted that we suggested grass between the path on one side of the garden and the border on the other. We favour a moderate amount of turf in a suburban garden for three reasons: (1) It looks cool and refreshing in hot weather; (2) it makes a good foil for the flowers in the border; (3) it affords space for free movements. We know of many suburbanists who make a delightful lounge of their grass plots. There are, of course, certain disadvantages. One is that the space available for flowers is curtailed, and another that mowing and rolling are necessitated. Some amateur gardeners are such determined flower-lovers that they will not give up a yard of precious space to grass. It is a matter of taste.

Assuming that a grass plot is to be formed, we may say that the simplest way is to get an estimate for laying turves from a local florist. The total cost, including labour, ought not to exceed £1 per square rod, less for a quantity; but something will depend upon the state of the ground when its preparation is entered upon. Many amateurs will prefer, however, to do the whole of the gardening work themselves. If they want turves they should get into touch with a builder who is about to break up pasture-land for building. If there is no such opening (and in many districts it is impossible to get turf except from such a distance as makes the freight costly), seed must be turned to. It is a question whether it is not best in any case to use seeds. It would hardly be thought that so simple a plant as grass would be susceptible to the influences of impure air, but it certainly is, and we have known of cases in which turf transferred from country to town gardens has refused to grow, apparently feeling the change too severely to be able to keep healthy. On the other hand, grass from seed came, and remained, healthy in the same garden, showing



LYCASTE SKINNERI

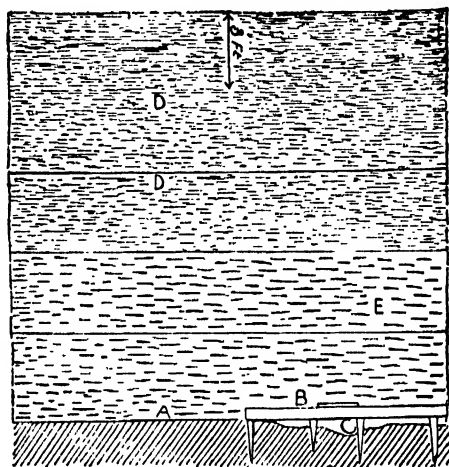
By A. Fairfax Mucklev

no signs of discomfort. It is naturalised and acclimatised, so to say, from the first.

The suburbanist who sets out to make a grass plot should fix two things in his mind as absolutely essential to success: the first is a level, fine bed of soil; the second, pure seed of a specially prepared mixture. He should dig the ground over in winter, and throw the soil into lumps, letting it lie thus for a few weeks; then, in favourable weather towards the end of March or in the early part of April, it will crumble down beautifully into fine particles, and can be raked perfectly smooth and level. It should be made firm during the levelling process, as if loose it may sink in parts later on, thus giving an uneven sward.

Turning to the seed, it is advisable to buy it from one of the large seedsmen who make a speciality of lawn grasses. The names of such firms will be quite familiar as exhibitors at the great popular exhibitions. It has to be remembered that

there are many different kinds of grasses, although amateurs often speak as though grass were always the same. Some kinds are much stronger than others. It is partly because country turf is largely composed of fine varieties that it does not thrive near towns. If the soil and the district are described when the order is sent, and a mixture suitable for somewhat adverse conditions is asked for, the experience of the big seedsman, who is daily preparing mixtures for different purposes, will enable him to provide a satisfactory blend. One pound of seed per square rod will be ample. It is well to choose a still day in the first half of April



A LAWN FROM SEED

A, ground levelled; B, straight-edge and spirit level resting on pegs; C, space to be filled up; D, D, a portion of plot duly sown; E, a portion not sown. For convenience of sowing, the plot is marked out in 3 ft. strips.

for sowing, but September is also a suitable month. Sowing should be avoided in windy weather, because the seed cannot be evenly spread, but is blown into heaps in places, while others go bare.

If the soil is lightly raked over after the sowing the seeds will be sufficiently covered, but it is a good plan to finish with a rolling. If the soil is in the right state for moisture it will not pick up on the roller. It should be neither quite dry nor saturated with moisture.

Birds must be thought of and circumvented, or the chances of getting a good sward will be reduced to a minimum. The seeds will disappear, and in place of grass will spring a network of various kinds of weeds. Covering with fish netting, or stringing black threads a few inches apart on short sticks, will suffice for protection. Whatever is used can be removed when the grass is an inch high, provided that it has come through evenly all over the ground; if not, the protection should remain on longer. As soon as the threads have been taken away the roller should be put over the plot again. It will crush down the young grasses, but that will do no harm whatever, and by pressing the soil round the roots it will encourage the emission of new fibres, from which fresh blades of grass will spring quickly. When there is a thick mat of grass from three to four inches high, the tops should be clipped off, preferably with shears or scythe, as this will encourage a further break of grass from the base. The lawn is now secure, and regular rolling and mowing will steadily improve it. Rolling is best done soon after rain, and is most effectual in spring, when the ground is comparatively soft. It will not have much influence in summer, when the ground is hard and dry. Mowing is best done when the grass is dry or nearly so. In the case of a young plot it is well to set the cutter rather high, so that the grass is not sheared off quite low down. This would bare the roots, and they might suffer in hot weather. It is not a bad plan to let the

grass fall and lie on young lawns; it causes a somewhat brown appearance as the cut grass dies, but on the other hand the roots are mulched and shaded.

A neat, straight edge is a nice finish to a grass plot, and care should be taken to prevent the encroachment of the grass on the path and border. If any one wants to judge how rapidly it would do so if not regularly clipped, let him observe how the turf and weeds at the side of country roads spread towards the middle. They often extend a couple of feet on each side in the course of a year, and have to be cut out by the roadmen.

We see that with mowing, rolling, and edge-clipping grass takes up as much time as a flower-bed of equal area, and an amateur must never settle the question of grass *versus* beds in favour of the former on the assumption that it will incur less labour and expense. That is not the way to consider it at all.

Walls and Fences.—The clothing these is a matter that deserves careful consideration. In small gardens the fence or wall area is very valuable; indeed, the smaller the garden the more important it is to make use of every inch of the party divisions. We have dealt with climbing and creeping plants in a previous chapter, and need not cover the whole ground again. But in view of the special circumstances, we may allude to a few plants that are useful for clothing walls and fences.

Veitch's Virginian Creeper.—This plant is somewhat too vigorous for the dividing walls, and may therefore be planted to cover the walls of the house. It will cling naturally. A good plant should be put in during March, in deep, rich soil, so that it may have a chance of getting well established before the hot weather comes. Veitch's Virginian Creeper thrives in suburban gardens.

A good Variegated Ivy.—The party wall is generally made higher between the abutments spoken of in a previous paragraph than it is lower down the garden, and a suitable plant for covering it is the variegated Ivy called *Hedera Helix rhombea*. It is more

vigorous in growth than most of the variegated sorts, and the leaves are prettily margined. To get the utmost vigour in Ivy, one must get the Irish, but that is green-leaved.

Jasmines.—The yellow, winter-blooming Jasmine, *nudiflorum*, is a thorough suburban plant, and it is really attractive, bearing its small yellow flowers in abundance. It is quite suitable for training against a low fence.

Honeysuckles.—Perhaps the best of the Honeysuckles is the variegated Japanese, which has prettily veined leaves. It is a free grower. *Flexuosa* is one of the best of the Honeysuckles that are grown principally for their flowers, and is very sweet.

Dutchman's Pipe (*Aristolochia Siphon*).—This quaint flower always interests people.

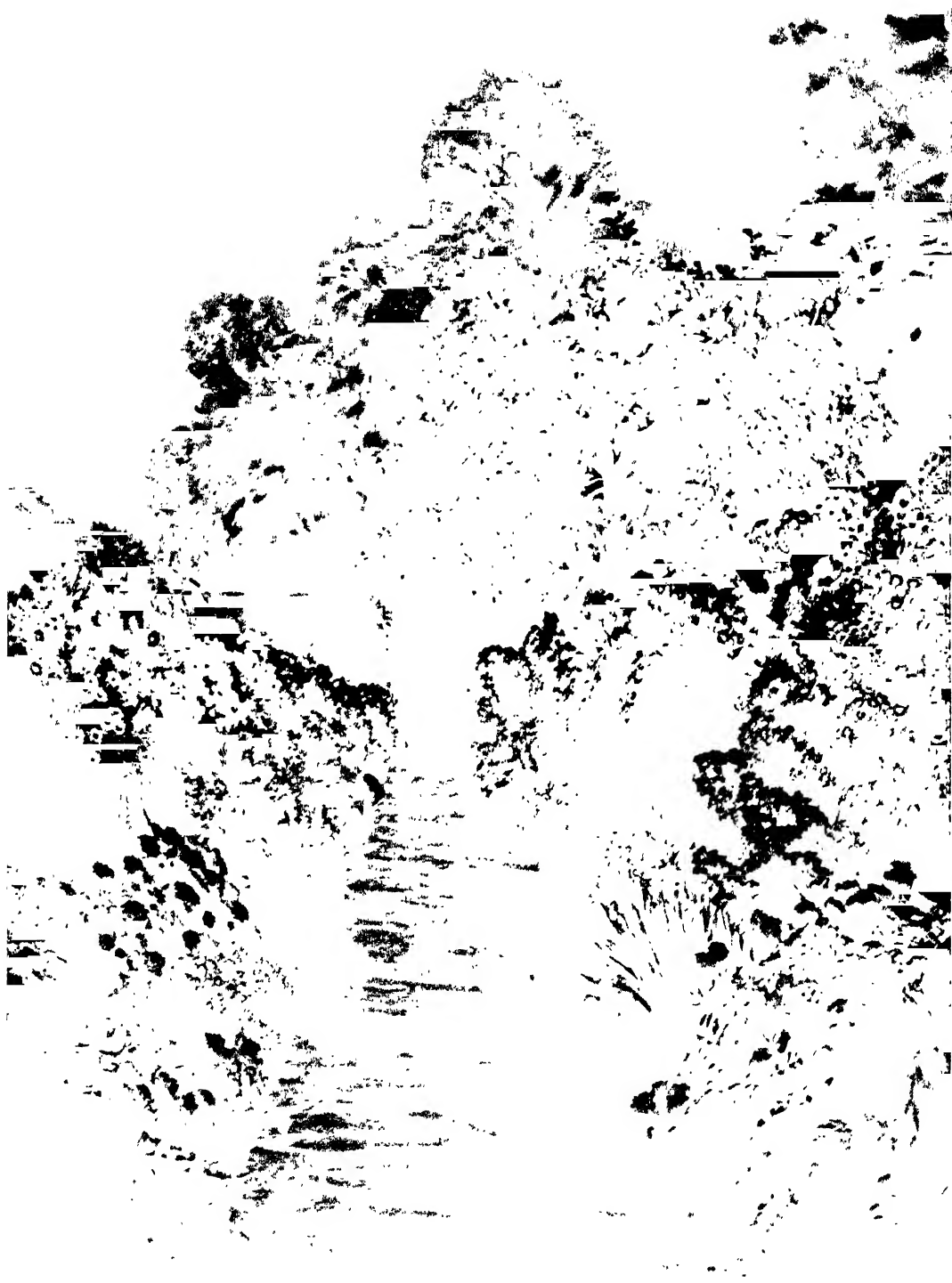
Ceanothuses.—The Ceanothus is a very attractive wall shrub. There are several species and varieties, mostly with blue flowers. They are not true climbers, like the Virginian Creeper, but they will cover a considerable expanse of wall if planted in good soil. They bloom profusely in summer.

The Japanese Quince.—*Cydonia* or *Pyrus Japonica*, the Japanese Quince, will thrive in the suburbs, and is one of the most valuable of all wall shrubs, on account of the fact that it blooms abundantly in winter and early spring. The large, single flowers of the typical species are almost of sealing-wax colour, but there are several varieties, in which the colour differs. The plant is well adapted for a low wall or fence.

Double Yellow Kerria.—This is another very valuable shrub for a low division. It produces long canes, which are clothed with double yellow, canary-coloured flowers.

The Pyracantha or Thorn.—The principal beauty of this plant lies in the berries, which are bright red in colour, and hang for a long time if the birds spare them.

Other handsome wall plants are procurable. Some amateurs may like to try the old *Wistaria sinensis*.



A SUBURBAN GARDEN, HAMPSTEAD
By Beatrice Parsons

Annual Ramblers.—Much can be done to beautify walls and fences in summer with annual flowers, notably Convolvuluses, Lathyrus (Everlasting Peas), and Tropaeolums (including Nasturtiums).

The absence of beauty on division fences is often due to the fact that the soil is poor and dry. Particular attention should be paid to preparing the ground under walls. It must be turned over deeply, the subsoil being broken up and manured. Further, a particular point should be made of planting early in spring, except in the case of tender Annuals. A great deal can be done to keep the plants healthy and vigorous by weekly soakings of water and occasional applications of liquid manure. Light daily sprinklings are of very little use.

Herbaceous Plants for Suburban Gardens.—The selection of plants for the borders will give food for much consideration. In this connection we would refer readers who want full information to previous chapters, notably those on herbaceous plants and tender bedders. In these days hardy herbaceous plants hold the sway in large gardens, and there is no reason why suburban amateurs should not grow a few representatives of this large, popular, and beautiful class. A border four feet wide will not, of course, give the scope for fine colour effects which are procurable by a judicious use of fine perennials. There is not room for large groups. But handsome clumps of some good plants can be grown if the soil is well dug and manured. Let us summarise a few of the best. Double and single Pyrethrums thrive, and there are few plants more beautiful. They are suitable for small borders, because their habit is neat and compact. The foliage is graceful without being far-spreading. The flowers are thrown well up on long stems. They are useful for cutting on this account. On the whole, we certainly commend Pyrethrums to suburban amateurs. Columbines are delightful plants, the habit being neat and the flowers elegant, as well as charming in colour. Snapdragons are admirable in every way. They grow freely almost anywhere, bloom

profusely, and are brilliant in colour. If the ordinary kinds are considered too large, recourse may be had to the smaller sections, which are equally as beautiful as the larger. Pentstemons are very graceful, and the flowers are as charming as those of any hardy plant in existence. These splendid plants are growing in favour every year, and suburbanists should make a point of becoming acquainted with them. Many of the Michaelmas Daisies (perennial Asters or Starworts) are too large for small borders, but others are not, notably *dumosus horizontalis*, *ericoides*, and *alpinus*; and they are among the most beautiful. Torch Flowers (*Kniphofias* or *Tritomas*) are very handsome, but they are somewhat bulky, and we must be satisfied with one or two clumps. *Chrysanthemums* will do yeoman's service. They are compact in habit, and produce charming flowers. We have given special attention to this grand flower already, and need do no more now than refer our readers to the hints on colour, and selections of varieties, which appear in previous pages. *Montbretias* are graceful and free-blooming plants, with slender spikes of brilliant flowers rising from a mass of narrow leaves. The perennials already named, if supplemented by a few bulbs and clumps of Annuals, would suffice for the majority of small suburban borders, and they are but a few of the many splendid plants available.

Annuals for Suburban Gardens.—Such popular hardy Annuals as *Clarkias*, *Godetias*, *Linums* (Flax), *Nasturtiums*, Sweet Peas, *Nemophilas*, *Saponarias*, *Silenes*, Poppies, Candytufts, *Convolvulus*, *Eschscholtzias*, *Bartonia*, Cornflower, Sweet Sultans, *Portulacas*, *Leptosiphons*, *Linarias*, Love-in-a-mist, Larkspurs, *Mignonette*, *Phacelia*, *Virginian Stocks*, and Night-scented Stock; also such beautiful half-hardy kinds as Asters, Ten-week Stocks, Marigolds, *Phlox Drummondii*, *Nemesias*, *Scabiouses*, *Salpiglossis*, and *Zinnias* are excellent for suburban gardens. A chapter has been devoted to them already, and we need only say that if the

selections and hints on culture which are there given are followed, a great charm should be added to gardens.

Bulbs for Suburban Gardens.—We have the lesson of the public parks before us to prove that bulbs play a prominent part among spring flowers. It is difficult to say what the park gardeners would do without Daffodils, Tulips, and Hyacinths. These beautiful bulbs come into a bedding scheme which consists of two annual plantings—one in autumn, the other in late spring. The beds are cleared of the summer flowers in October, and planted with bulbs, which make way in their turn in May for a fresh lot of summer plants. Amateurs may put clumps of bulbs in their mixed borders for the sake of a spring display, which will be at its best when the herbaceous plants are only just starting to grow. And they may also plant bulbs in beds, interspersed, if desired, with Arabises, Aubrietias, and Forget-me-nots; all of which can be cleared away in May to make room for half-hardy Annuals or orthodox bedding plants, such as Tuberous Begonias, Zonal Geraniums, and Ivy-leaved Geraniums and Mimuluses. We have given full directions on the culture of bulbs, as well as hints on the choice of varieties, in a previous section, and also copious notes on bedding plants.

Roses for Suburban Gardens.—It is with deep regret that we find ourselves unable to recommend Roses unreservedly as plants for suburban gardens. Their beauty of form, their glorious colours, their fragrance, render these magnificent flowers supreme. Unfortunately the plants do not care for town life. Impure air has a marked effect upon them. The leaves get coated with smuts, and the buds refuse to open. The plants may flower fairly well once or twice, but they steadily decline. Whether success can be achieved in suburban gardens or not depends more on the atmosphere than on anything else. We have failed to grow Roses satisfactorily in a London suburb, and succeeded admirably near a country town. If there are no factories close to the garden, and

the houses are not dense, very fair success can be achieved. But near large works, and with houses close together, Roses will probably fail.

Something turns upon culture, however. If the soil is well prepared, and strong plants of vigorous sorts are put in, the prospects of success are brighter than in a poor soil and with weak varieties. In our Rose chapter we saw that the plants like a substantial, holding soil and abundance of manure. We advised the trenching of the soil and the digging in of liberal dressings of manure. Road scrapings are good for Roses, and this material is generally procurable in the suburbs of towns. Any trouble that is taken in preparing the ground will be rewarded, and the good work thus done can be supplemented by giving generous doses of liquid manure throughout the summer, and house slops (including soapsuds) at all seasons when they are available. Most of the advertised fertilisers are soluble in water, and may be used as liquid manure. Peruvian and other refined guanos, also superphosphate, make excellent liquid manure if used at the rate of an ounce per gallon. Hoeing the soil among Roses is good practice.

It is wise to make the most of the limited energies of the plants by restricting them to a few shoots and flowers. Half-a-dozen branches will be better than twice that number. The clusters of flower-buds may be thinned down to one in each case, except in certain bunch-flowered varieties like Gruss an Teplitz.

We gave a list of good Roses in Chapter I., but the trial of a considerable number of newer varieties since that was written, in which we have found some charming varieties, induces us to give a further list. They comprise representatives of various classes.

HYBRID PERPETUAL ROSES

The Hybrid Perpetual Roses, with their large, richly coloured, highly perfumed flowers, are a very popular class, and they are



A BEAUTIFUL GARDEN—THE PLATTS, WATFORD
By Beatrice Parsons

invariably prominent at the exhibitions. Of the newer varieties of these we should give prominence to the following :—

Red Shades

Commandant Felix Faure. | Hugh Dickson. | J. B. Clark. | M. H. Walsh.

Rose and Pink

David R. Williamson. | Lady Overtown. | Mrs. Cocker. | Rosslyn.

Hugh Dickson is a fine crimson, and does well late in the season. It is nicely scented. J. B. Clark is also a good Rose. We are not sure that this is rightly classed among the Hybrid Perpetuals, but the classification of Roses is a highly debatable question.

Frau Karl Druschki remains the best of the newer white Hybrid Perpetuals, and it is much to be regretted that this splendid variety, with its grand flowers, is scentless.

TEA ROSES

The Tea-scented Roses are a lovely class, as they unite pretty leaf-tints with charming flowers, and all are scented. The following are among the most beautiful of the newer varieties :—

White or Blush

Peace. | Comtesse de Saxe. | Mrs. Myles Kennedy.

Rose, Red, and Carmine

Mrs. B. R. Cant. | Corallina.

Lemon to Orange

Harry Kirk. | Hugo Roller. | Mrs. Dudley Cross. | Souvenir de Stella Gray. | Sulphurea.

With reference to the above, Peace is one of the best varieties that we have for late blooming ; it flowers freely, and the flowers

are handsome. The colour is white to lemon. Comtesse de Saxe is a very pleasing white.

Corallina is a very valuable variety, as it forms a large bush, blooms abundantly and late, and is of a distinct shade of coral red. It would be as likely to do well in a suburban garden as any of those named. Harry Kirk is a very pretty sulphur-coloured variety, and although there are many yellows of various shades, it is likely to hold a high place in public esteem. Mrs. Dudley Cross is a very distinct tint, which has been described as chamois yellow. It is a very attractive variety. Souvenir de Stella Gray, orange and yellow, is extremely pleasing.

HYBRID TEA ROSES

By far the largest number of new Roses belong—or are said to belong by their raisers—to the Hybrid Tea class. They comprise some of the most beautiful of Roses, and are sure of an abiding place in the favour of rosarians. The following are some of the best of the newer varieties:—

Pink and Rose

Gustave Grunerwald.	La Tosca.	Earl of Warwick.
Betty.	Elizabeth Barnes.	Pharisaer.
Lady Ashtown.	Wm. Shean.	Prince de Bulgarie.
Lady Helen Vincent.		

Yellow, Salmon, and Orange

Instituteur Sirdey. | Madame Melanie Soupert. | Marquise de Sinety. | Le Progrès.

Scarlet, Carmine, and Crimson

Souvenir de Maria Zozaya.	Ecarlate.	Mrs. A. M. Kirker.
Dean Hole.	General MacArthur.	Richmond.
Edu Meyer.	Madame J. W. Budde.	Warrior.
Avoca.		

Cream

Florence Pemberton. | Frau Lilla Rautenstrauch. | Mrs. T. Roosevelt.

Where all are so beautiful it is very difficult to make a choice. Lady Ashtown is a charming pink, and Lady Helen Vincent a pink with a yellow base. Earl of Warwick is a fine salmon pink. Edu Meyer is coppery red with a salmon shading. Madame Melanie Soupert is a very pretty salmon-coloured variety, which blooms freely and has a particularly neat flower. Marquise de Sinety is a rich yellow inclining to orange. Ecarlate is a particularly vivid scarlet, and General MacArthur a splendid crimson, bearing abundance of flowers. These are two of the best of the deeper coloured Hybrid Teas. Mrs. T. Roosevelt is a fine cream-coloured variety, with large, handsome, substantial flowers. It ought to become a great favourite for exhibition.

DWARF SINGLE ROSES

A class of low-growing single-flowered Roses has been introduced, with flowers of great beauty. Three of the best are:—

Irish Elegance, bronzy orange. | *Irish Engineer*, scarlet. | *Irish Glory*, silvery pink.

Of these *Irish Elegance* is the most desirable. It is a beautiful and very distinct variety. Exquisite sprays of it can be cut for vase decoration.

TWO BEAUTIFUL CONTINENTAL HYBRIDS

Two of the most distinct Roses that we have are:—

Gottfried Keller, apricot, semi-double. | *The Lyon*, coral, tinted chrome.

These are hybrids of Continental origin. The latter is a particularly interesting variety. It is supposed to have Austrian Brier blood in its veins, and is classed as a Hybrid Pernetiana Rose—quite a new section.

JAPANESE ROSES

The Japanese Roses (*Rosa rugosa* varieties), with their rough leaves, large flowers, and huge hips, are useful for forming large

groups, and have not hitherto been held in very high esteem for their flowers, but the modern varieties have charming blossoms. The following are both beautiful:—

Conrad F. Meyer, rose.

|

Nova Zembla, white.

The former is a splendid variety, with large double flowers, and adds new value to the class. The latter is a white sport from it.

DWARF POLYANTHA ROSES

These delightful little Roses are among the most interesting of the whole genus. They are of neat, bushy habit, and they bear their flowers in bunches. The colours are bright and varied. It will give the reader an idea of this class if we ask him to imagine the popular arch Rose Dorothy Perkins as a low bush plant, say two feet high and the same through, with bunches of flowers similar to those which it bears on arches, but the clusters somewhat smaller. There are two or three such sorts, and there are other varieties of different colour. Here are the names of a few:—

Cecile Brunner, rose.

Leonie Lamesch, copper.

Madame N. Levavasseur, crimson.

|

Maman Levavasseur, pink.

Mrs. W. H. Cutbush, pink.

Phyllis Merryweather, pink.

Madame N. Levavasseur is the dwarf Crimson Rambler. Maman Levavasseur is the variety called by British florists the Baby Dorothy, as it is a non-rambling form of Dorothy Perkins. Both Mrs. W. H. Cutbush and Phyllis Merryweather might be similarly described, and they are superior to Maman Levavasseur. Either of these, with Leonie Lamesch, would make a charming pair of representatives of the Dwarf Polyantha Roses.

DWARF CHINA ROSES

This class somewhat resembles the foregoing in habit. The plants are dwarf, bushy, and covered with pretty little flowers.



A WINDOW BOX
By A. Fairfax Muckley

They make beautiful beds. The following are a few of the best :—

Madame Laurette Messimy, rose. | *Madame Eugène R  sal*, red. | *Queen Mab*, apricot.

CLIMBING ROSES

With the selection given in the first chapter may be considered the following newer varieties :—

<i>Blush Rambler</i> , blush.		<i>The Lion</i> , crimson, single.
<i>Electra</i> , lemon.		<i>Trier</i> , cream.
<i>Kathleen</i> , carmine, white eye.		<i>Eiisa Robichon</i> , salmon Wichuraiana.
<i>Leuchstern</i> , bright rose.		<i>Minnehaha</i> , pink, like Dorothy Perkins.
<i>Mrs. F. W. Flight</i> , pink.		<i>Madame R��n�� Andr��</i> , cream.
<i>Philadelphia Rambler</i> , dark crimson.		<i>Paradise</i> , pink and white, single.
<i>Tausendsch��n</i> , pink.		<i>Climbing Frau Karl Druschki</i> , white.

The hints on pruning given in Chapter I. apply equally to Roses grown in suburban gardens.

We advise suburbanists who are in doubt as to whether Roses might be expected to succeed in their gardens to try a few vigorous varieties first of all, and if the results are satisfactory they could increase the collection. The following would be good to start with :—

Hybrid Perpetuals

Mrs. John Laing.		Frau Karl Druschki.		Xavier Olibo.
Ulrich Brunner.		Hugh Dickson.		

Teas

G. Nabonnand.		Peace.		Corallina.		Anna Ollivier.
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Hybrid Teas

Augustine Guinoisseau.		Madame Abel Chatenay.		Richmond.
Gr��ss an Teplitz.		General MacArthur.		Caroline Testout.

Carnations in Suburban Gardens.—The Carnation is a genuine town garden plant. Some of the most famous of Carnation growers have cultivated their favourites in or near a town. The fact is, the Carnation has none of that susceptibility to the influences of

impure air which makes the Rose so tantalising. We do not say that, other things being equal, Carnations will not thrive better in pure country air than in the atmosphere in or near a town; but knowing as we do how well town and suburban growers manage them, and that some of the principal exhibitors for many years past, and at the present day, have grown this popular plant in and near towns, we have no hesitation in recommending suburbanists to give special attention to it. Many amateur gardeners love to take up one particular flower and concentrate attention on it. They find that they get more pleasure and satisfaction from this than from spreading their energies over a large number of kinds. To those of this class who garden near towns the Carnation may be warmly recommended. It responds to specialisation in a remarkable way, yielding magnificent flowers. The collection may be grown either in the garden or under glass, or partly under both conditions. Exhibitors mostly make use of glass. The cultural hints and selections of varieties given in the special chapter devoted to Carnations apply to suburban as to other conditions of culture, and we need, therefore, do no more in this section than draw the attention of amateur gardeners to this splendid plant as one which ought to suit their circumstances admirably.

Auriculas in Suburban Gardens.—As in the case of the Carnation, so in that of the Auricula, some of the most successful growers and exhibitors have been town and suburban gardeners. One of the finest collections of prize Auriculas which it was ever our privilege to see was grown by a working cutler in the heart of smoky Sheffield. The Auricula has none of the majesty of the Rose, none of the fluttering grace of the Sweet Pea, none of the massive beauty of the Chrysanthemum. It is a tiny plant, retiring and modest. But it has a charm, a winsomeness, which appeal powerfully to lovers of refined flowers. It is a dainty little floral gem, pretty in form, pleasing in colour, and delightful in perfume. Suburban not less than country gardeners who want to specialise

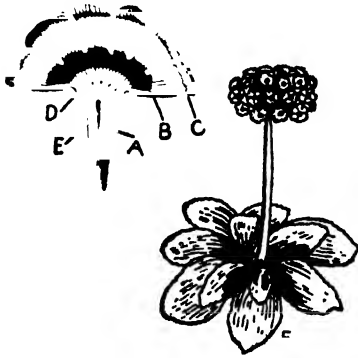
one or two particular flowers might do worse than consider the claims of the Auricula. It will not give brilliant effects either indoors or out, but it will always be interesting. Being an ever-green plant, it will have something to show, if only healthy leaves, throughout the whole of the year.

CLASSES OF AURICULAS

Florists put Auriculas into two main classes—the Stage (or Show) and the Alpine; but a third class, called Border Auriculas, is recognised nowadays, when hardy plants are used so much. The last are generally raised from seed. The Stage Auriculas are subdivided into Green-edged, Grey-edged, White-edged, and Self. In the case of the first three the distinctive term springs, as would be supposed, from the colour on the margin of the flower. Within is the “paste” or meal. The Selves are not, as might be expected, of one colour only; they also contain paste, as well as a distinctly coloured tube, but flowers with yellow and dark margins are called Selves. The Alpines have no paste. They are generally larger than the Stage varieties, and the plants are hardier. The Border Auriculas are really Alpines.

The Auricula is specialised as a florists’ flower, the same as Roses, Dahlias, Sweet Peas, Daffodils, Carnations, and Tulips. There are Societies devoted to it and its connection the Primula (botanically all Auriculas are Primulas), and Auricula Shows are held in London and one or two provincial centres in spring. The Auricula has not so numerous a following as the Rose, the Sweet Pea, and the Daffodil; indeed, the rise of the last-named flower has doubtless affected the Auricula as a specialist’s flower. It has a difficulty in holding its own. The old lovers of the flower die out, and the rising generation grows something else. The state of affairs which exists may be judged by the fact that only a small handful of trade florists maintain representative

collections nowadays, whereas hundreds keep large stocks of the other flowers named. The difficulty which the Stage Auricula has



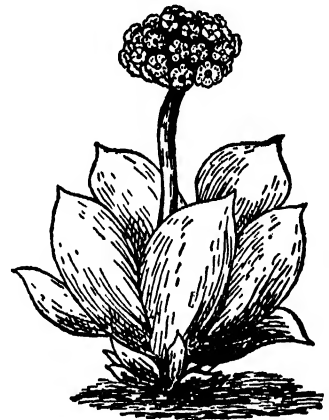
STAGE AURICULA

A, tube ; B, body ; C, edge ; D, anthers filling mouth of tube ; E, stigma low down in tube ; F shows general habit of plant.

to maintain its position is not wholly due to the competition of the Daffodil, but arises in part from the fact that it is of little use as a border plant. We are full of decorative gardening in these days, and a plant which will not lend itself to the formation of effective beds and borders runs considerable risk of going to the wall. The old florists always grew their Auriculas in pots under glass, generally in frames, and that is really the only way of getting good results from them. It is true that

the plants are hardy enough to live out of doors, but the meal or paste of which we have already spoken, and which in combination with the even margin of green, grey, or white gives the flower its exquisite refinement, would be affected by rain, and the beauty of the flowers would be spoiled.

The flower of a florists' Auricula may be said to consist of four distinctly marked parts—the tube, the paste, the body colour, and the edge. It must be round and flat, and the edge must be quite even and smooth. A jagged, quartered, or uneven flower might have pleasing colours, but it would possess no charms for the true florist. The tube should be of a clear lemon, canary, or yellow shade, and quite circular. The anthers will be prominent in it, but the stigma will be hidden. The paste or meal which surrounds the tube should be dense and white ; if patchy or cloudy the flower is imperfect. The ring of colour round the paste should



ALPINE AURICULA

Showing offsets growing.



SINGLE CHRYSANTHEMUM

By Beatrice Parsons

be perfectly even and solid, and the band of colour on the edge should also be an even circle, whether green, grey, or white.

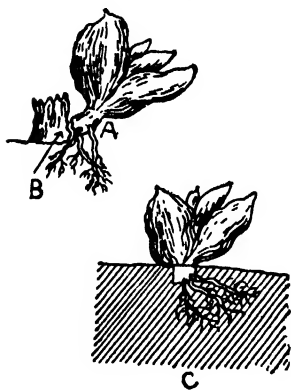
It might be thought that such perfect banding as this would be impossible of attainment, but if well-bred varieties are grown they will respond quite in the way that the grower wants to good cultivation.

The Alpines are less elaborate, inasmuch as they do not contain any paste. There is a central colour—yellow, white, or cream—and an edging in the form of a broad band, generally of a dark colour, but somewhat paler at the edge than at the interior. They are more showy flowers than the Stage section, and are perhaps more popular with the general public; certainly some of the fine modern Alpines are great favourites. Being hardy, and having no meal to be spoiled by rain, they are admirable for garden culture. They may be used as clumps in borders, or rock-work, or in beds, either alone or in association with Tulips. We fear that we cannot say that they are ideal spring flowers for town gardens, although the frame Auriculas may be grown in towns, as we have stated already.

CULTURE OF PRIZE AURICULAS

An amateur who wanted to grow a collection of Stage and Alpine Auriculas in pots, with which to compete at exhibitions, would be wise to face the expense of making a start with named varieties of recognised standards. Judges are familiar with these varieties, and expect to see them. They would not pass over a really good seedling because they did not know it under name; on the contrary, they would cluster round it eagerly, and compare it with the best of the standard varieties. But really good seedlings are few and far between. A collection of ordinary ones would not stand a ghost of a chance against a collection of named varieties. Prize Auriculas may be expected to cost from one-and-

sixpence to half-a-guinea a plant. Most of the leading varieties can be bought for half-a-crown each. If this is complained of as



AURICULA—PROPAGATION

Offsets severed from parent plant.

A, offset with a few roots attached; B, parent plant stem; C, offset inserted in soil.

dear, it must be said that Auriculas can never be really cheap, because they increase very slowly, and trade growers are unable to work up a large stock of them quickly. They are propagated by means of offsets, which are taken off late in winter and put in small pots. We must not be understood as contending that Auriculas of a sort cannot be raised fairly quickly. The plants grow readily from seeds if these are sown as soon as they are ripe; but the point is that the plants resulting cannot be relied upon to come of anything like the quality of their parents. So

far as garden Auriculas are concerned, there need be no hesitation in growing them from seed, just like hardy Primulas and Polyanthuses. If seed is got from one of the florists who make a speciality of these plants, charming varieties are sure to result. The seed may be sown in May or June, in fine, moist soil in the open, the seedlings thinned, transplanted in due course, and put in the beds or borders in autumn. They will flower the following spring.

Pot Auriculas thrive in a compost of four parts fibrous loam, one each of leaf-mould, decayed manure, and sand, all well mixed.

Prize Auriculas are repotted annually, and the work is done soon after flowering. It ought not to be done later than July. Five-inch pots are a suitable size, and many growers use glazed instead of ordinary porous pots. They find that the plants do perfectly well in such pots, and the surface of the pottery never gets green and



AURICULA—POTTING

A shows old ball of soil reduced; B, drainage, and rougher parts of compost in the bottom of the pot; C, space left for watering.

slimy. Whatever kind of pots are used, they should be drained with an inch or so of crocks and lumps of soil, such as flakes of leaf-mould. The soil should be pressed firmly round the plants, but not made absolutely hard. The plants should be replaced in the frame, on a bed of cool ashes or a low wooden stage, and kept close and on the dry side for a week, by the end of which time the roots ought to be working freely again. Attention to watering and ventilating will be all that is requisite until February, when the plants may be deprived of any offsets which have formed, and top-dressed. It is customary to place the frames in positions facing north during the summer, and facing south during the winter.

A sharp look-out should be kept for the Auricula louse and for green fly, which must be brushed away before they have time to spread and cause injury.

Auriculas grown for garden decoration in late spring may consist entirely of mixed seedlings, but there are certain select named varieties grown which are particularly fine, and well worthy of special attention. Border Auriculas, like most of the Primrose family, love a cool, holding soil. They do not care for poor, dry, sun-baked spots. They make delightful beds in May, and may be associated with Cottage and Darwin Tulips if desired; but care should be taken to plant thinly, because these Tulips are very strong growers, and need a good deal of room. The Auriculas may be lifted after flowering, the decaying trusses picked off, and planted in a spare bed. They will come in again for future use.

Having touched upon the principal points in the culture of Auriculas, we may now proceed to give selections of varieties, including some from the various sections.

<i>Green-edged</i>	<i>Grey-edged</i>	<i>White-edged</i>	<i>Sells</i>
John Garrett.	Colonel Champneys.	Acme.	Black Bess.
Julian.	George Rudd.	Heather Bell.	Heroine.
Rev. F. D. Horner.	Richard Headly.	Reliance.	Mrs. Potts.
			Ruby.

Alpines

Celtic King, a splendid yellow border variety.

Dean Hole, maroon, yellow centre.

Old Double Yellow, a scarce and interesting sort.

Masterpiece, purplish maroon, yellow margin.

Mrs. Harry Turner, purplish maroon, cream centre.

Chrysanthemums for Suburban Gardens.—The Chrysanthemum is one of the great flowers of the suburban gardener. From the earliest days of the Golden Flower being specialised in this country it has been grown by suburbanists, and it is worthy of note that the National Chrysanthemum Society was founded in a London suburb. Amateurs grow Chrysanthemums both in pots and borders: in the former, for the decoration of their conservatories in autumn; in the latter, for giving border beauty in August, September, and October. As we have given a special article to the Chrysanthemum, giving details of culture and full selections of varieties, and as the system of management is practically the same in all cases, we need not deal with the flower at any length here; but we are very desirous of encouraging suburbanists to make the utmost use of this magnificent plant, and as an incitement to them to grow it we may remind them of the splendid displays which are to be found in the London and provincial town parks in autumn, as well as in the gardens and greenhouses of countless town amateurs. Several large Chrysanthemum nurseries are to be found within the confines of London and other large towns. We will admit one difficulty, which is greater in town than in country gardens, that of the flowers “damping” in foggy weather; but it is not general in most seasons, if the management is good.

Sweet Peas in Suburban Gardens.—Suburban gardeners have not failed to take note of the wonderful development of the Sweet Pea, and to press some of the exquisite modern varieties into their service. Fortunately the Sweet Pea is a very good suburban flower. We have seen it fail in the immediate vicinity of gas-



YUCCAS

By Beatrice Parsons

works; but that even such unsuitable surroundings are not fatal was proved by the fact that 100 yards away another set of plants was thriving. We may refer suburbanists to the special chapter on Sweet Peas for information as to culture and varieties, emphasising the fact that vigorous seedlings and deep, well-manured soil are of the greatest importance. If we had to grow Sweet Peas in gardens much closed in by small houses, or near factories, we should devote particular attention to raising very strong, sturdy plants in pots or boxes. If we had no glass we would go to the expense of a frame, which would not cost much. With good potting soil, and attention to watering and ventilation, we should expect to get strong plants. We would put twigs in the pots, and let the seedlings run to about nine inches high before putting them out. After planting them we would see that they never suffered from dry soil until they had got into thorough going order, and we would freshen them up frequently with the syringe. Knowing as we do of many amateurs who grow Sweet Peas successfully in the suburbs, we have no hesitation in recommending all amateurs who have not already tasted the pleasures of Sweet Pea growing to resolve that not another season shall be lost. We believe in the regular picking of Sweet Peas while the flowers are young in all cases, and it is particularly advisable in suburban gardens. Though the plants love sunshine, it is no serious disadvantage if they miss the sun for three or four hours in the day. The salmon, orange, and thin-petalled scarlet and crimson varieties soon lose their freshness in hot sun. Regular hoeing will help to keep the plants growing, and soakings of liquid manure once or twice a week (not dribbles every day) will be stimulating and beneficial.

Dahlias in Suburban Gardens.—The Dahlia is not an ideal suburban plant, partly because it likes a cooler, moister, and richer soil than generally prevails, partly because it is bulky and makes greater demands on space than can be met in many cases. In small gardens we would rather rely on the smaller Michaelmas

Daisies and early Chrysanthemums for late summer and autumn bloom than on Dahlias, and if these two splendid plants are well selected and grown the Dahlias will never be missed. However, we are far from saying that Dahlias are impossible suburban plants. Given rich, moist soil and sufficient room, they may very well be represented. A Dahlia lover who felt that he could not provide reasonably promising conditions for the large double and Cactus Dahlias might try the Pompons. They are very pretty, and they will do with a poorer soil than the rest. Hints on culture and varieties have been given.

Pansies and Violas in Suburban Gardens.—As confirmed lovers of moist, cool soil, Pansies are not perfect plants for suburban gardens, where the ground is often hot and dry; but it is not impossible to grow them successfully, as we have proved by our own experience. We have even planted them at midsummer; but special precautions had to be taken in the way of shading. It will be well for any suburbanist who wishes to grow Pansies to thoroughly dig the soil in winter, and if possible work in a liberal dressing of cow manure. Further, he would be wise to plant early in spring, so as to give the plants a good chance of getting established before the hot, dry weather of summer came. Then, with hoeing and watering, he ought to get some nice flowers. Until he had felt his way, it would not be wise to buy expensive named varieties; he should begin with seedlings, which he can raise himself by sowing a packet of seed in a box in a greenhouse or warm frame in winter, thinning, pricking-off, and planting out in due course. Probably more amateurs will wish to grow Violas than Pansies, and in this case named varieties may be selected from the list given in a previous chapter and planted early in spring. They will thrive if good soil is given, and a weekly soaking of water is supplied. There should of course be regular hoeing.

Irises for Suburban Gardens.—The Great German or Flag Irises are almost ideal plants for town and suburban gardens. They care

for nothing. Bad air, poor soil, drought—all these bugbears of plants the German Iris will endure, and even thrive in. With their thick rhizomes they are able to withstand drought almost as well as a camel. We do not, of course, say that the Flag Irises give the very best that is in them in town gardens. Like the rest of planthood—and humanity too, for the matter of that—they enjoy the good things of life. In pure air and in rich, deep soil, they make growth of the utmost luxuriance, and throw up tremendous flower spikes, crowned by huge blooms. But the point that we have to keep before ourselves in the present connection is that they can dispense with luxuries and still give good results. Those town and suburban amateurs who have poor, dry soil and a hot position to contend with should make the Flag Iris one of their principal plants. They might even specialise it to the extent of growing a collection of the best varieties. To meet the wants of those who may like to follow this course, we may give a somewhat larger selection than that suggested on page 87, Volume I.



GERMAN IRIS—DIVIDING
ROOT-STOCK

A, A show how to divide the root-stock, and B shows how the parts may be still further reduced.

SELECT GERMAN OR FLAG IRISES

Atropurpurea, dark purple, rich colour.
Duchess de Nemours, pale heliotrope.
Darius, lilac with white margin, orange beard.
L'Innocence, pure white.

Madame Chereau, blue and white.
Othello, blue.
Pallida, lavender, very fine.
Pallida Garibaldi, lilac and rose.
Sans Souci, yellow, brown veins.

They may be planted in autumn or spring. Established plants should be divided and planted in fresh soil when the root-stock gets very much matted.

It should be noted that the Japanese Irises (*laevigata* or *Kaempferi*) are totally different from the Flags, requiring a moist soil. They are magnificent plants, but they are not suitable for the majority of suburban gardens.

The English and Spanish Irises will thrive in suburban gardens, and they are both beautiful and cheap. They are not rhizome rooted, but bulbous, and dealers supply them in autumn with Hyacinths, Tulips, and other bulbs. Although smaller than the Flags, the flowers are little less beautiful. Dealers offer named varieties of both classes, but it is scarcely worth while to buy them, as there are no shows for them, and practically no discussion on the different sorts. Mixed bulbs will do quite well.

The foregoing notes on some of the most useful plants for small gardens, with the fuller remarks in previous chapters, will, it is hoped, be of assistance to suburban amateurs. We need not deal at length with plants for the greenhouse, supposing such a structure to be erected, because a comprehensive chapter has been devoted to greenhouses and suitable plants for them; but we may let fall the hint that the plan of specialising one or two particular classes of flowers, which is so popular nowadays with garden plants, is by no means without advantages for the greenhouse. An amateur with a warm house may, for instance, make a speciality of Zonal Geraniums, which will form a beautiful display in winter if a minimum temperature of 50° can be maintained. No genus of plants, indeed, will do more to brighten a greenhouse at the dull season. In the case of an unheated house bulbous and allied plants, such as *Spiraeas*, *Dielytras*, *Lilies* of the Valley, Christmas Roses, and *Deutzias* must be drawn upon largely.

We have spoken hitherto of quite small suburban gardens, at the back of terrace houses. More may, of course, be done in the larger gardens belonging to semi-detached and wholly detached

HARDY CHRYSANTHEMUM
By Beatrice Parsons



villas further out. When these are situated in purely residential districts the conditions almost approximate to those in the country, and even Roses can be grown successfully. Owners of such gardens may have a somewhat more elaborate plan, and in some cases at least they can introduce fruit and vegetables if they wish. We should, however, recommend that flowers still be given pride of place. Vegetables are excellent in their way, but they do not add one iota of the pleasure and interest to a home that flowers are capable of yielding. The few shillings a month that they save in the greengrocer's bill amount to little compared with the gratification of seeing beds, borders, and rooms full of beautiful and fragrant flowers. In any case, as vegetables and fruit do not come within the scope of the present work we must pass them over.

Pergolas and Arches in Suburban Gardens.—There are one or two features of interest worth mentioning for the larger and more airy suburban garden which are not quite appropriate for those that are severely restricted in area. One of these is a pergola, or series of connected arches. Those who are prepared to go to such trouble and expense as are entailed by getting the requisite quantity of poles will be repaid by the beauty and interest of the erection when complete. On pages 71 and 72 of the present volume we give practical illustrations of pergola erection, showing a ground plan, how to embed the posts, and how to connect the top timbers. Further, we give hints on the class of wood to employ and how to treat it. Suggestions for selecting plants to cover the pergola are offered. We can hardly advise any particular suburban amateur to plant the beautiful Roses named on page 72, and other climbing varieties mentioned in the present chapter, without knowledge of his circumstances; but if the air is fairly pure he may certainly feel his way with a few of them, filling up the first year or two with plants grown from seed, such as Canary Creeper, Convolvuluses, Ornamental Gourds, Cobaea

scandens, and tall Nasturtiums. If experience prove that the Roses tentatively planted do well, he may drop Annuals in future and plant more Roses.

More arches may be introduced with the greater number of sections into which the garden is likely to be divided. We do not believe in putting up arches merely for the sake of doing it. We would not, for instance, put an arch in the middle of a lawn, although we might construct an arbour there. We would not put one over the middle of a path merely for the pleasure of walking under something. But we would certainly introduce arches wherever there was a legitimate opening for them, because they break up the uniformity of a garden. As indications of appropriate places for arches we may mention the junction of flower and kitchen gardens, and entrances to sections divided off by hedges, shrubs, or trellis-work. See pages 68 to 71 inclusive for practical hints on the formation of arches.

Herbaceous Borders in large Suburban Gardens.—One immense advantage which the large suburban garden will enjoy over its smaller neighbour is the capacity for providing a capacious herbaceous border. We have seen that something can be done even with a four-feet border, but to get a thoroughly effective one we ought to have a width of eight feet at least. This permits of introducing large clumps of such plants as Paeonies, Delphiniums, Hollyhocks, Ox-eye Daisies, Phloxes, the larger Michaelmas Daisies, Chrysanthemums, and other bold, richly coloured things. The planter does not feel himself skimped and pinched for room. He can give rein to his fancy. He has a sense of breadth and freedom.

With a really good herbaceous border no garden can be wholly ineffective. It has one great outstanding feature at least which raises it above mediocrity. And the border will not only be beautiful and interesting as a whole; it will yield large and constant supplies of flowers for carrying into the house. We gave

full instructions on the preparation and planting of herbaceous borders in Volume I.

Shrubs in Suburban Gardens.—The suburbanist with a fair amount of room can also add to the interest of his garden by planting more shrubs. He is no longer compelled to restrict himself to a few Aucubas and Laurels, introduced as much for their services as blocks and screens as for their intrinsic beauty. He can add flowering shrubs. The majority of these lose their leaves in autumn, the same as herbaceous plants, so that they are not of very much value for forming screens. Nor should they be looked upon as stop-gaps. They should be introduced with the deliberate object of adding direct beauty to the garden with their foliage and flowers. Many of the best flowering shrubs thrive in suburban gardens where the air is fairly pure, if the ground is well prepared for them and the general culture is good. A great deal depends upon the preparation of the soil. This should be as thorough as for Roses—that is, it should be bastard trenched and manured so as to get a depth of about two feet. While the majority of flowering shrubs will do better in cool, holding soil than in light land, they will thrive in the latter if it is well prepared.

The majority of the flowering shrubs bloom in spring, but some excellent kinds can be got which will blossom at other seasons; indeed, it is possible to have beauty almost throughout the year, as a few actually flower in winter. We will draw attention to some handsome shrubs which will flower at different periods.

We must not expect much bloom in the winter, but there are a few kinds which will flower in that quarter. One of these is the Glastonbury Thorn. The Thorns belong to the botanical genus *Crataegus*, and the Glastonbury Thorn bears the botanical name of *Crataegus Oxyacantha praecox*. *Crataegus Oxyacantha* sounds formidable, but it is really neither more nor less

than the common Thorn. Praecox (will the reader please think of the word "precocious" as a help to remembering this name?) is merely an early flowering form of the common Thorn. Some readers will be familiar with the story of how Joseph of Arimathea visited England with the Holy Grail, and founded the first Christian church built in this country at Glastonbury, in that county of pastures and cider orchards, Somersetshire. Joseph is said to have thrust his staff into the ground; it rooted, and "ever afterwards" the tree blossomed on old Christmas Eve. As a matter of fact the Glastonbury Thorn often flowers in autumn.

We have already referred to the Japanese Quince, *Cydonia* (or *Pyrus*) *Japonica*, as a winter bloomer, mentioning it in connection with wall plants. It may be grown in the open if desired. This shrub has become so popular, partly on account of its early flowering and partly because of its large and brilliant blossoms, that florists have given attention to it, and several varieties, differing in the colours of their flowers, are procurable. It does not generally flower until late in winter, but a good deal depends upon the weather.

A shrub that may be grown in a sheltered part of the open shrubbery, but is perhaps better on or near a wall, is *Chimonanthus fragrans*. It is not a popular plant, possibly because there is nothing showy about it, but the flowers have a distinct and very powerful fragrance. It is worth growing.

The winter Jasmine, which was mentioned under wall plants, takes rank as a shrub, and may be grown against a pole in the shrubbery. It is, of course, a pronounced winter bloomer, and a first-class town plant.

Daphne Mezereum is a delightful winter and early spring shrub. It is of dwarf, upright, neat habit, and consequently does not take up a great deal of room. It has small, pinkish, very sweet flowers. The plant is not very particular as to soil, and does well in suburban gardens.



SUMMER IN THE FLOWER GARDEN
By A. Fairfax Muckley

Some of the *Magnolias* are early bloomers, and among them the beautiful species *stellata* ranks very high. It has large, pure white flowers, which are borne in advance of the leaves, and which clothe the stems in a snowy star-mantle of bloom. *Magnolia stellata* flowers freely in quite a small state, and is consequently suitable for comparatively small borders.

Forsythia suspensa is a very early bloomer, and in mild winters is out before the spring quarter begins. It produces long, slender canes wreathed in bright yellow flowers, and grows almost anywhere. It must be regarded as one of the best of early flowering shrubs, and should not be omitted, however small the collection.

The flowering Currant, *Ribes sanguineum*, is a very early flowering shrub, which makes itself at home in nearly all kinds of soil, grows freely, and blooms profusely. It is really a valuable plant to the amateur, on account of its happy and accommodating nature, and its generosity in flowering. The typical plant has rose-coloured flowers, but there is an inexpensive white form, and several special varieties that cost a little more.

The queen of the spring-flowering shrubs is undoubtedly the *Rhododendron*, a noble plant, alike in habit, foliage, and bloom. We should not attempt its culture in small, much enclosed gardens quite close to factories; not that it is a weakling, but because it must be grown with suitable surroundings in order to look its best. A small plant stuck among other shrubs is apt to look insignificant, especially if bare at the base; but even a solitary *Rhododendron* looks well if somewhat isolated, surrounded by grass, and clothed with foliage quite to the base. Of course, *Rhododendrons* look best of all when they are planted in a group at some distance from the house, with a broad belt of grass in front of them.

The *Rhododendron* likes, and is worthy of, special treatment. It does not care for a stiff, cold, damp soil, and it absolutely detests a limestone one, refusing to grow in such a medium as the latter. It likes peat, and it enjoys fibrous loam, as indeed do most plants.

An amateur who particularly admires Rhododendrons would be well advised to carefully consider the soil question, and if his own ground is unsuitable, remove the soil to a depth of two feet where he proposes to plant Rhododendrons, and substitute a mixture of peat and loam. The cost ought not to be so heavy as to counter-balance the pleasure derived from success with the grandest hardy shrub grown. The position also should be considered. One protected from strong, cold winds is desirable. Rhododendrons may be planted at almost any time from autumn to spring, but they rarely shift better than in April, late as this month seems for planting. Of course they could not be expected to succeed when planted in spring if exposed to cold winds and insufficiently watered.

Rhododendrons bloom during winter in very mild, moist districts in the extreme south-west of England, but further north they flower in spring, sometimes nearly at the end of that quarter. When they are planted in positions where the heat of the midday sun is intercepted the flowers last a long time in beauty. They ought to be picked off when they fade, but not so low down as to injure the new buds which will probably have formed at the base of the flower truss. The following are beautiful varieties:—

John Waterer, crimson.

Michael Waterer, brilliant red.

Mrs. John Clutton, white.

Pink Pearl, light pink.

Princess of Wales, rose.

The Queen, blush.

Azaleas are also beautiful shrubs, but most of them, unlike Rhododendrons, lose their leaves in the winter. The reader will doubtless be quite familiar with the charming Azaleas seen in florists' windows in spring, but these belong to the Indian section, and are not hardy enough to be grown out of doors. The mollis type is the best for garden culture. The colours are not so varied and brilliant as those of *Azalea indica*, but they include a larger proportion of yellow and salmon tints. They like similar soil to Rhododendrons. *Anthony Koster* is a splendid variety.

The Berberises are among the most valuable of all shrubs, owing to their dense habit, evergreen foliage (although some are not evergreen), and pretty flowers. The most common of the genus is *aquifolium*, which is the same plant as that called by many nurserymen *Mahonia aquifolia*; but it is excelled in beauty by *Darwinii* and *stenophylla*, and these two should have the most prominent positions, *aquifolium* being reserved for shady, dry spots. The Darwin Berberis is the most valuable species, because it is evergreen, is of distinct and handsome growth, and has pretty orange flowers. It is of neat habit, and does not grow rapidly, consequently it is an admirable shrub for small gardens. The beautiful hybrid called *stenophylla* is perhaps the next best Berberis. It is a vigorous grower, and produces abundance of yellow flowers in spring. These plants will grow in most soils, but we have had some little difficulty with them in poor, shallow soils over chalk. Such ground needs heavy manuring.

Magnolias are among the most beautiful of all spring-flowering shrubs. We have mentioned *stellata* already. It is generally in bloom in spring. *Conspicua* is quite as fine, and we have a note of a splendid plant of this in a London suburb. Like *stellata* it has white flowers. *Grandiflora*, also white-flowered, is a large and very fine species. The suburbanist cannot afford to overlook the Magnolias. There is nothing in the least like them among hardy shrubs. They may be grown in the open or on walls, but they do not care for cold, exposed, wind-swept places.

Lilacs are great favourites, and every amateur likes to have one or two bushes in the garden, for the sake of the delicious fragrance of the large clusters of bloom. With time they will grow into trees, but they do not move very fast, except in particularly rich soil. They are hardy plants, and will stand a considerable amount of buffeting. Perhaps the ideal soil for them is a light, fertile loam, but they will thrive in heavier as well as lighter land if it is well drained. The common Lilac satisfies most people,

because it is so fragrant, but there are varieties with finer flowers, notably Marie Legraye and Michael Buchner, the latter of which is double.

We mentioned *Deutzia gracilis* as a suitable plant for growing in an unheated greenhouse, and hence the impression may have been gathered that it is hardy. It will certainly pass the winter out of doors, but weather that would not hurt the plant will often injure the flowers, and therefore mar the beauty of the shrub just as effectually as if frost cut the growth. The species *crenata flore pleno* is almost equally as beautiful as *gracilis*, and flowers rather later, so that it is preferable for the garden. The *Deutzias* lose their foliage in autumn like *Lilacs*. They are, in a word, deciduous, not evergreen.

The amateur may not have heard of the *Weigela*, but we can confidently recommend it as one of the best of the spring-blooming deciduous shrubs. It is remarkable for its profusion of bloom and its bright colours. The flowers are not large, but they are borne in such numbers that the shrubs look a mass of blossom. The *Weigela* is not in the least fastidious as to soil. It seems to do almost equally well on sandy and on clayey land; anyway, we have had equal success with it under both conditions. The varieties *Abel Carrière* and *Eva Rathké* are two of the most popular. The latter is a great favourite on account of its rich colour.

Almost every townsman knows *Gorse*—in fact, it will be so familiar as to have no garden interest. Who would think of growing in his garden a plant that covers miles of common? We will not suggest that the ordinary *Gorse* be grown, but we must certainly put in a word in favour of one or two allied plants, notably *Cytisus Andreanus*, a Broom with beautiful flowers of rich brown and yellow, borne abundantly. Everybody who sees this charming plant falls in love with it. Like the *Gorse*, *Furze* or *Whin*, it thrives on sandy land, which has not body enough

JAPANESE ANEMONES



for more substantial shrubs. Neither Broom nor Gorse, however, is partial to chalky soil.

The Mock Orange (*Philadelphus*) is not remarkable for beauty of form or colour; indeed, its habit is rather straggly, and its flowers have no decided tint—they are of a cloudy white. But the delicious odour of some of the species (and none is sweeter than the common one, *coronarius*, although several are larger) more than compensates for any want of beauty. We think one or two Mock Oranges should be grown, but they will not come into bloom until nearly the end of spring perhaps.

One of the most beautiful of the *Spiraeas*, namely, *arguta*, is an early bloomer, and this most graceful and charming plant should find a place in all collections of good flowering shrubs. It is not very fastidious as to soil, but enjoys loam.

In respect of the question of soil, we may say that if any shrub lover is importing soil in order to improve the natural medium in his garden, on account of its paucity and want of fertility, he cannot do better than arrange that the greater part of it shall be decayed turf. When turves rot down after being stacked for a few months they make the best soil for the great majority of our finest shrubs. Practically everything will grow in it. Some leaf-mould is helpful, but it need not consist of more than a quarter. In the absence of leaf-mould, road sweepings could be added to the loam with advantage.

A shrub which thrives in sheltered places out of doors, but which could hardly be relied upon in cold places, is *Choisya ternata*. This is well known to gardeners and botanists, and is making its way steadily in the favour of amateurs also. One thing in its favour is that it is an evergreen, and the foliage is bright and ornamental. The white flowers are borne in great profusion, and are very pretty, while they are pleasantly scented.

The *Laurustinus* (*Viburnum Tinus* of the botanical books) is one of the cheapest and most common of shrubs, but amateurs

must not disdain it, for it is an evergreen, is compact in growth, has fairly ornamental foliage, will grow almost anywhere, and blooms in winter and spring. There is nothing strikingly beautiful about the flowers, but if cut with foliage attached to the stems they are by no means bad material for vases in winter. We have not met the soil yet in which the *Laurustinus* refuses to grow.

Lovers of Heaths are probably familiar with *Erica carnea*, and perhaps with *E. mediterranea* also. These are early bloomers, and have a charm of their own. They are not any-soil plants, of course. They do not care for stiff, damp land. They like a light sandy soil. Given that, they are beautiful and happy.

Veronicas have a good many admirers. They are not very early bloomers, but are often in flower before the end of the spring quarter. They are evergreens—most of them, at all events—and grow in close bushes. Very few shrubs are more easily pleased in the way of soil.

Kalmia latifolia is an evergreen with pretty blush flowers which is growing steadily in popularity, and, indeed, is getting its full share of the increased favour which flowering shrubs generally are receiving in these days.

A few shrubs that are not very well known to the general body of amateurs, but are highly esteemed for their grace and beauty by the cognoscenti, are *Andromeda polifolia*, a pretty, pink-flowered evergreen that thrives best with peat in the soil; *Exochorda grandiflora*, commonly called the Pearl Bush, with charming white flowers; *Halesia tetraptera*, the Snowdrop Tree, an exquisite shrub with lovely white flowers; *Amelanchier canadensis*, a deciduous shrub with white flowers; and *Rubus deliciosus*, also deciduous, and with white blossoms.

The last spring-blooming shrubs that we need mention are two species of *Viburnum*, one being *Opulus*, the Guelder Rose, and the other *plicatum*. With all respect to those who elevate the former into the position of a prime favourite among flowering

shrubs and leave the latter to the gardens of the few, we think that *plicatum* is much the more valuable species of the two. It does not form such perfect balls as the Guelder Rose, but the individual flowers are much bigger, and are borne in large bunches, which almost cover the bush. When grown in moist, peaty soil in a sheltered place, it forms a bush several feet through and high, heavily laden with flowers, and becomes an object of great beauty.

As we have said, the majority of flowering shrubs are at their best in spring, but *Rhododendrons* are not always over when the summer quarter commences—in fact, they may only be approaching their best at the end of June in cold districts. There are, too, several good shrubs that are distinctly summer-blooming. The *Buddleias* are prominent among these. They cannot be termed popular at present, but it is quite certain that they will become so in due course, now that hardy shrubs are securing so much more attention than they used to receive. *Buddleia variabilis Veitchiana* is a particularly promising variety. It is deciduous. The flowers are borne in long pyramidal clusters rather like *Lilacs*, but smaller.

We predict greater popularity for the *Catalpa* too—a real town and suburban shrub or small tree, with large and beautiful flowers. *Bignonioides* is the species to ask for when ordering. *Hydrangea hortensis* is well known as a pot plant, and the variety *paniculata grandiflora* is quite as well worth growing in the garden as *hortensis* is under glass. It thrives in sheltered places. The varieties of *Althaea frutex* (now called by the botanists *Hibiscus syriacus*) are handsome dwarf shrubs, blooming in August as a rule, and with flowers of various colours. They are deciduous. The flowers are very bright, especially in such varieties as *Pompon Rouge*, *Violet Clair*, and *Celeste*. There is a white called *totus albus*. We do not think that these shrubs are as well known, even to owners of large gardens, as they deserve to be, as we do not often see them except in nurseries.

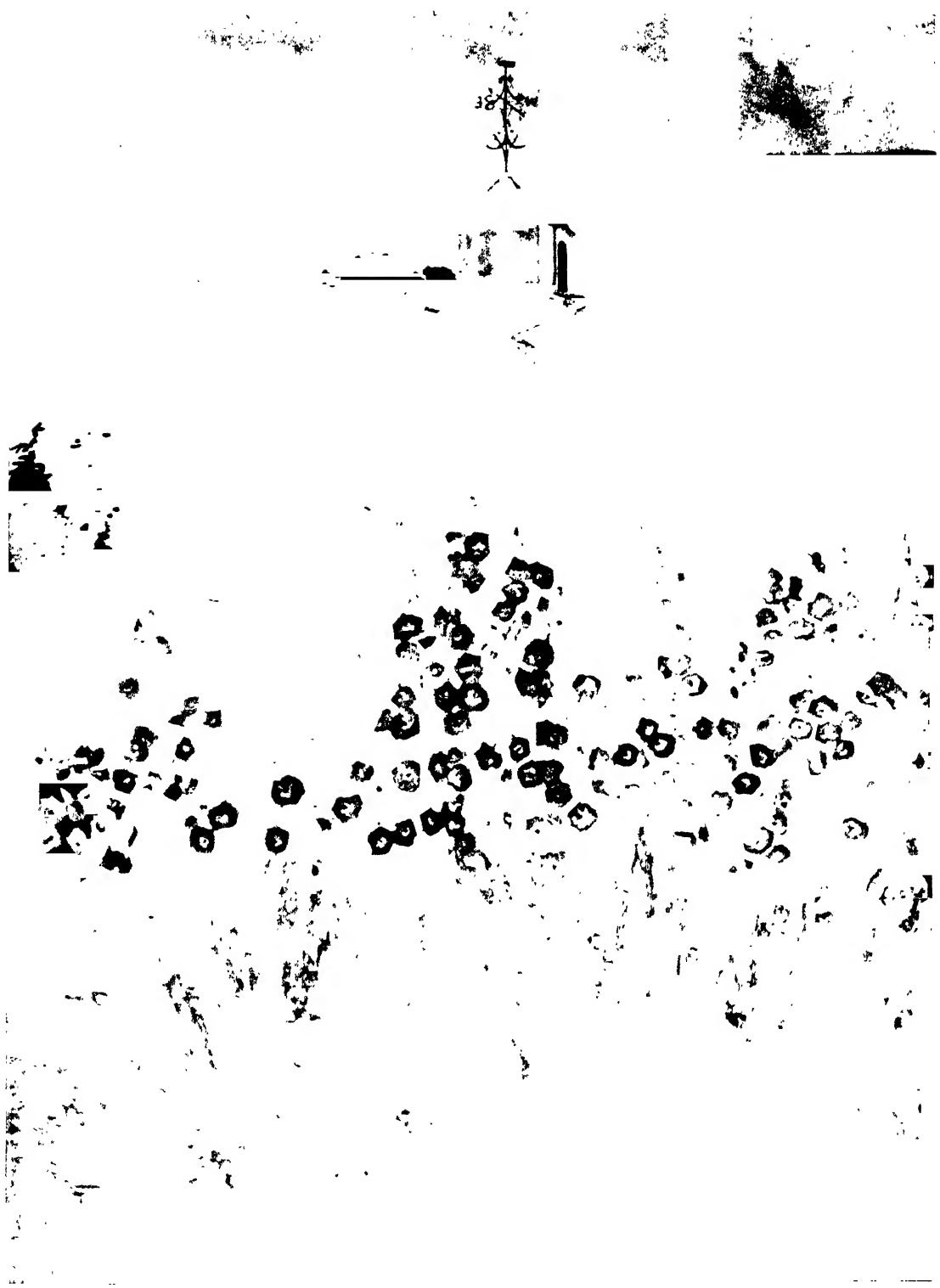
We hardly know if the *St. John's Worts* are considered good

enough for representation. They are certainly common, cheap shrubs, but they are at least as good as Aucubas and such like, as they produce abundance of yellow flowers. Like Aucubas they are very useful for planting under trees. One of the best of the St. John's Worts is *Hypericum Moserianum*, but *Androsaemum*, the Sweet Amber, and *calycinum*, the Rose of Sharon, are also useful.

The *Spiraeas* are among the finest of summer-flowering shrubs, and every amateur should grow a few of the best. It is not all of the Meadow Sweets that can be fairly classed as shrubs, inasmuch as they lose their stems as well as their leaves in autumn, and must therefore be called herbaceous. But some are true shrubs, losing their leaves in winter, and retaining their stems. Of such are *Douglasii*, which has rose-coloured flowers, and is sometimes grown under the name of *Menziesii*; *bullata*, which has pink flowers; *canescens*, a graceful species with pink or white flowers; *Aitchisoni*, with pale yellow flowers, one of the best; *bella*, with red flowers; *discolor ariaefolia*, white, a very useful sort; *Japanica* or *callosa*, rose (this must not be confounded with the *Spiraea Japanica* of bulb dealers, the true name of which is *Astilbe Japanica*), and its several varieties, of which *Anthony Waterer*, crimson, is one of the best; and *prunifolia* and its double variety *flore pleno*; but the last two often bloom in spring.

A shrub that has achieved immense popularity is *Romneya Coulteri*, commonly called the Californian Poppy. It produces very large, white, yellow-centred flowers, and is worthy of special treatment, such as the provision of good soil, a sheltered position, and winter protection. Some growers do not protect the plant if it is growing in rich loamy soil, because they find that if the branches are killed they have only to put some litter over the roots to insure its throwing up abundance of strong shoots the following spring. It thus becomes a herbaceous plant.

A delightful shrub, far too little known, is the *St. Dabeoc's Heath* (*Daboëcia polifolia*), the flowers of which have a shade all



HOLLYHOCKS
By Margaret Waterfield

their own. There is a white variety. This plant (which is sometimes grown under the name of *Menziesii polifolia*) is an evergreen. It never grows to a large size, and is in its most useful stage when it is about eighteen inches high, for it is densely clothed with flowers. It enjoys a peaty soil, but will thrive in loam. It may be expected to be at its best in August and the early part of September.



PRUNING SHRUBS

after flowering, removing bloomed wood. A shows the bloomed wood to be removed ; B, B show young shoots that must not be cut off.

We do not get much autumn bloom among the shrubs, but we get abundance of berries, and they are bright and cheerful. We get them on the Aucubas, for instance, on the Dogwoods (*Cornus*), on the Spindle Tree (*Euonymus*), on the *Pernettya*, a charming little shrub, on the *Skimmias*, on the Snowberry (*Symphoricarpus*), and on the Japanese Rose (*rugosa*).



PRUNING SHRUBS

In spring for those that flower on current year's growths. A, A, A, shoots to be cut out ; B, B, B, shoots to be retained ; C, C show how to disbud to avoid undue crowding of young wood.

As regards pruning shrubs. Those that flower on the wood made the previous year should be pruned after flowering, the wood that has bloomed being cut away to make room for new. But those which flower on the young wood of the current year may be pruned in spring. See figures.

The suburbanist who has a large garden fairly well out of the town will perhaps like to have a selection of ornamental trees, not too large in growth. It is a pity to fill up valuable space with large common trees like the Plane and the

Lime, good town trees though they certainly are. The Almonds are useful because of their accommodating nature and early bloom.

The double scarlet Thorn, the Scotch Laburnum, *Pyrus spectabilis*, various Hollies, the Mountain Ash, with its sprays of bright berries, and *Prunus Pissardii* (for its purple leaves) are also worth considering. These trees never attain to very large dimensions; at the same time, they have beauty of flower, berry, or foliage to recommend them. They are thus well suited to owners of small gardens.

Lovers of the class of trees called Conifers (because they bear cones, which are woody bracts or compound fruits) may like to include a few, and we readily agree that they are very useful. Some are deciduous, others evergreen. A well-known example of the former class is the Spruce, and of the latter the Cypress (*Cupressus*). One of the most useful of the Conifers for a small garden is *Cupressus Lawsoniana*, a graceful, hardy, and inexpensive, if somewhat sombre tree, of which there are many varieties, differing in habit from the type. The Douglas Fir, *Wellingtonia gigantea*, the Maidenhair Tree (*Ginkgo biloba*), and the Cedar are a few popular Conifers.

CACTI

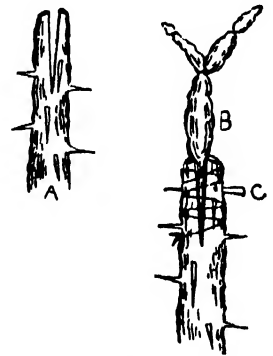
The term Cactus conveys some sort of meaning to most people who are interested in plants, just as Orchid does, but it is not every amateur gardener who could say with confidence what is or what is not a Cactus or an Orchid.

There are many Cacti, just as there are many Orchids—we mean different genera, not merely different species or varieties. A *Cereus* is nearly as distinct from an *Opuntia* as a China Aster is from a Poppy, but both *Cereuses* and *Opuntias* are Cacti, and Asters and Poppies are not. The amateur who sees a plant without ordinary leaves, but with thick and peculiarly contorted stems clothed with sharp hairs, bristles, spines, or hooks, will be fairly safe in setting it down as a Cactus.

The Cacti as native plants are certainly an adaptation to particular circumstances. They belong to dry countries like California and Mexico, and accordingly they are given by Nature the capacity to store up a good deal of water by means of their thick, fleshy stems, and to hold it by reason of the comparatively small evaporating area they possess. An ordinary plant, with a greater or smaller spread of leaves, gets rid of a great deal of moisture by evaporation; but the Cactus could not afford to do that in its native habitat, and accordingly contents itself with spines and hooks, some of which are so strong and sharp as to be capable of inflicting severe wounds on people who handle them carelessly. A curious proof of the moisture-holding power of some Cacti lies in the fact that when cuttings of *Opuntias* are taken they have to be laid on a dry shelf for a few days to insure root production. If they were put into damp soil, and kept close and shaded like the cuttings of ordinary plants, they would probably rot.

What are the claims of Cacti on the attention of amateurs? Certainly considerable. While some of them are admittedly more quaint than beautiful, all are interesting, and some are as brilliant as any flowers that we possess. Where can more glowing flowers be found than those of the *Phyllocactuses*, for example? The *Cereuses*, too, are showy, likewise the well-known *Epiphyllum*.

The fact that Cacti are great drought-resisters is a point in their favour in the case of amateurs who are away from home for the greater part of their time. The plants do not require very much water at any time. They do not call thirstily for drinks two or three times a day. It generally suffices to give water twice a week in summer, and once or twice a month in winter, when frequent watering would probably lead to decay.

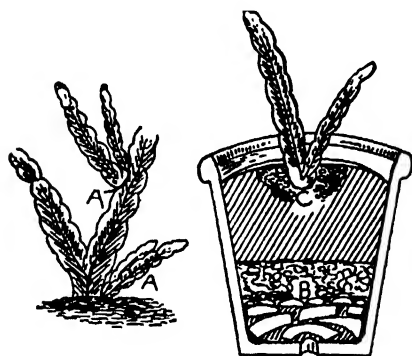


EPIPHYLLUM—GRAFTING

A, stock, *Cereus speciosissimus*; B, graft inserted and made secure by driving a thorn of the stock through as shown at C.

Hot sun does not take the freshness out of Cacti as it does out of Ferns, and consequently the question of shading does not crop up. Here is another advantage for them in the case of the absentee amateur. He can go away all day without harrowing fears of his plants being scorched up or flagging from want of water.

At the first view, a collection of Cacti which does not contain any plants in bloom is the reverse of inspiring. There is an air of torpor, of lifelessness about the plants which tends to



PHYLLOCACTUS—CUTTINGS

A, A show suitable cuttings on old plant ; B, drainage ; C, coarse sand and fine gravel around base of cutting in pot.

the impression that they are lacking in interest. Rough, knotted, gnarled, contorted, with no cheerful foliage to refresh the eyes of the observer, they have rather the effect of a museum—instructive, perhaps, but not enticing. Closer acquaintance teaches better things. There is interest in observing the remarkable forms which the plants assume, and the singular appendages with which they are furnished. In

Pilocereus senilis, for instance, we have a fluted cylinder the crown of which is densely furnished with long white hairs, in addition to white spines. This covering leads to the plant being given the popular name of Old Man Cactus. It hardly ever flowers, but that is of very small moment, in view of the interest which arises from its venerable aspect. It may anticipate a question to say that *Pilocereus senilis* has neither dark nor flaxen hair when it is young, which gets white with age. It is woolly white even in its youth. It succeeds in a greenhouse.

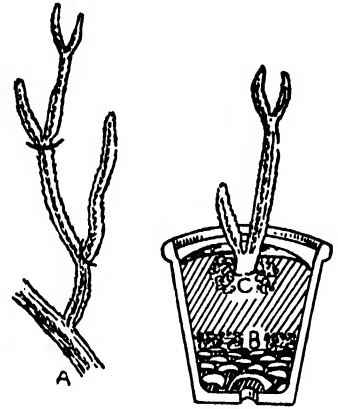
Other Cacti possess interest owing to their singular shape, and so it is that although the number of amateurs who specialise Cacti is small, the band is a devoted and faithful one.

Some of the Cacti have great beauty to recommend them,



BELLADONNA LILIES
By Hugh L. Norris

however. Take the *Cereuses* first of all. They are most brilliant flowers. Two of the best known species are *fulgidus*, with scarlet flowers, and *speciosissimus*, also with scarlet flowers. Both are very showy plants. *Flagelliformis*, which produces pink flowers in spring, is a good plant for growing in baskets. *Grandiflorus* and *nycticalus*, both of which have white flowers, bloom at night. *Macdonaldiae*, which has white flowers with red sepals, is also a night bloomer. The *Cereuses* give no trouble, as they rarely require repotting, need no water in winter, and will grow in any light, sunny, fairly warm house. They like a compost of sandy loam and broken brick, with sand and charcoal.



CEREUS—CUTTINGS

A, plant showing suitable cuttings, which must be severed as denoted by the curved dark line; B, ample drainage; C, sand and fine gravel.

There are many bright plants in the genus *Echinocactus*, and *Epiphyllums* are still more desirable, as they include the brilliant species *truncatum* and its several varieties. These are plants of greater luxuriance than many of the Cacti, and may have some leaf-mould added to the loam, say a quarter, instead of shattered brick. If kept dry and rested in winter in a cool house they may be restarted towards the close of winter, and will flower splendidly in a window in early summer. They are propagated by grafting.



OPUNTIA—CUTTINGS

A shows the right cutting to select; B, drainage material in pot; C, coarse sand and fine gravel around the base of the cutting.

The *Mammillarias* are an important genus. They are low and cylindrical, with many spines. *Crassispina*, *dolichocentra*, *elongata*, and *longimamma* are three of the principal species. Like most of the

Cacti, they thrive in loam, sand, and shattered brick, and need very little water in winter.

The *Opuntias* are a large genus, and include species of remarkable appearance, as well as others of great beauty. The species *leucotricha* (or *ursina*) is so shaggy as to have received the name of Grizzly Bear Cactus. They will succeed with the same treatment as other kinds.

The last genus which we have space to mention is *Phyllocactus*, and this is perhaps the most beautiful of all. Very few species are cultivated, as the florists have provided a number of beautiful hybrids and varieties, such as *Agatha*, pink; *albus superbus*, white; *Exquisite*, rose; *Jenkinsoni*, crimson; and *Niobe*, scarlet. They are easily grown, thriving in loam, leaf-mould, and sand, needing a light, warm house, moderate watering in summer, and very little in winter.

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